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# ***JPRS Report***

# **Environmental Issues**

19980515 150

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U.S. DEPARTMENT OF COMMERCE  
NATIONAL TECHNICAL INFORMATION SERVICE  
SPRINGFIELD, VA. 22161

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# Environmental Issues

JPRS-TEN-90-005

## CONTENTS

13 June 1990

### INTERNATIONAL

Soviet-U.S. Conference on Environment Opens in Sochi [Moscow TASS 4 Jun] .....	1
Moscow Climate Change Meeting Prepares SWCC Document [Moscow TASS 28 May] .....	1
International Environment Protection Meeting Opens in Bulgaria [Sofia BTA 4 Jun] .....	1
Nuclear Power Plant Safety Conference Held in Soviet Crimea [Moscow TASS 22 May] .....	1
Finnish-Soviet Environmental Interaction Expanding .....	2
Concern Over Kola Emissions [Helsinki HELSINGIN SANOMAT 31 Mar] .....	2
Finns Urge Quicker Action [Helsinki HELSINGIN SANOMAT 3 Apr] .....	2
Joint Gulf of Finland Survey [Helsinki HELSINGIN SANOMAT 30 Mar] .....	3
Paper Views Cooperation [Helsinki HELSINGIN SANOMAT 1 Apr] .....	3
Finnish-Soviet Kola Pollution Dialogue Continues [Helsinki HELSINGIN SANOMAT 5 Apr] .....	4
Unusual Cloud Attributed to Soviet Nickel Refinery Explosion [Helsinki Domestic Service 8 Jun] .....	4
Finnish, Soviet Officials on Alleged Nickel Refinery Explosion [Helsinki Domestic Service 8 Jun] .....	4
Soviet Official Says Kola Chlorine Leak Possibly 'Concealed' [Helsinki International Service 9 Jun] .....	5
CEMA-EC Talks Explore Environmental Coordination [Moscow TASS 12 Jun] .....	5
Austrian Leaders Make Environment Proposals at Energy Meeting [Vienna DIE PRESSE 9 Jun] .....	5
Balkan Energy Ministers Meeting Notes Ecology Concerns [Tirana ATA 30 May] .....	6
FRG Offers Bulgaria Environmental Protection Assistance [Sofia DUMA 28 May] .....	7
International Ecological Consortium Formed in Bulgaria [Sofia BTA 6 Jun] .....	7
CSFR Foreign Minister on Gabcikovo, Temelin Power Projects [Bratislava NARODNA OBRODA 2 Jun] .....	7
Hungary Signs Environmental Aid Agreement With EC [Budapest MTI 5 Jun] .....	8
PRC Environmental Delegation Visits USSR [Moscow International Service 16 May] .....	8

### AFRICA

#### INTER-AFRICAN

Environmental Policies Coordination Failures Noted [Paris JEUNE AFRIQUE ECONOMIQUE Apr] .....	9
--	---

#### NAMIBIA

Government Denies Talks on Nuclear Waste Deal [Johannesburg SAPA 1 Jun] .....	10
---	----

### CHINA

China's Pollution-Related Economic Losses Highest in World [Hong Kong CHING-CHI TAO-PAO 30 Apr] .....	11
--	----

### EAST ASIA

#### NORTH KOREA

Success in Development, Protection of Aquatic Resources Claimed [KCNA 1 Jun] .....	12
--	----

#### MONGOLIA

Green Party Officially Registered in Mongolia [Moscow TASS 26 May] .....	12
--	----

#### TAIWAN

Taiwan Farmland Increasingly Polluted [Beijing RENMIN RIBAO OVERSEAS EDITION 21 Mar] .....	12
---	----

## EAST EUROPE

### INTRABLOC

Bulgarian Group Threatens Protests Against Romanian Chemical Plant [Bucharest Domestic Service 1 Jun] .....	13
Bulgarian, Romanian Activists Discuss Giurgiu Chemical Works [Sofia BTA 1 Jun] .....	13
Bulgarians Demonstrate Against Romanian Chemical Plant [Sofia Domestic Service 3 Jun] .....	13
Bulgarian, Romanian Ecology Activists Meet on Chemical Plant Issue [Sofia Domestic Service 5 Jun] .....	13
Bulgarian Government Adopts 'Urgent Measures' on Ruse Pollution [Sofia Domestic Service 6 Jun] .....	13
Romanian-Bulgarian Joint Ecological Demonstration [BTA 8 Jun] .....	14
Romanian, Bulgarian Ministers Discuss Ruse-Giurgiu Pollution [Sofia Domestic Service 9 Jun] ...	14

### BULGARIA

Government Adopts Environmental Protection Program [BTA 8 Jun] .....	14
Need for Belene Nuclear Plant Questioned [OTECHESTVEN FRONT 30 May] .....	15
Specialists Find No Evidence of Chernobyl-Related Morbidity [DUMA 26 May] .....	16

### CZECHOSLOVAKIA

Joint CSFR-USSR Meeting on Ecological Impact of Troop Pullout [Prague Domestic Service 31 May] .....	17
Green Party Broadcasts Election Platform [Prague Domestic Service 30 May] .....	17
75,000 Contaminated Dairy Cows To Be Slaughtered [RUDE PRAVO 1 Jun] .....	17
Power Plant Desulfurization Technology, Funding Explored [ZEMEDELSE NOVINY 29 Apr] .	17

### GERMAN DEMOCRATIC REPUBLIC

Greifswald Nuclear Power Plant To Close [ADN 1 Jun] .....	19
Statistics Provided on Ecological Damage to National Forest Reserves [SAECHSISCHE ZEITUNG 7 May] .....	19
Measures for Monitoring Air Pollution Detailed [SCHUETZEN UND HELFEN Apr] .....	20

### HUNGARY

Green Party Holds Congress, Elects Leadership [MTI 3 Jun] .....	23
---	----

### POLAND

Officials Outline Plans for Katowice Area Polluting Industries [RZECZPOSPOLITA 2 Mar] .....	23
---	----

### YUGOSLAVIA

Krsko Nuclear Power Plant To Close by 1995 [TANJUG 6 Jun] .....	25
---	----

## LATIN AMERICA

### ARGENTINA

CNEA President Views Future of Atomic Energy [TELAM 20 May] .....	26
---	----

### BRAZIL

S&T Secretary on Washington Climate Conference, National Policies [O GLOBO 7 May] .....	27
Military Position Paper Defends Amazon Development [FOLHA DE SAO PAULO 29 May] .....	29
Environment Secretary Pressures Government on Demands [O ESTADO DE SAO PAULO 9 May] .....	29

## CHILE

- President Creates National Environment Commission  
[Santiago Television Nacional de Chile Network 5 Jun] ..... 30

## URUGUAY

- Housing, Environment Ministry Established [EL DIA 1 Jun] ..... 30

## NEAR EAST/SOUTH ASIA

### INTERNATIONAL AFFAIRS

- Israel Seen as Beneficiary of Arab Water Policy Disputes [Cairo AL-SHA'B 3 Apr] ..... 31

## EGYPT

- Radiation Monitoring Network To Be Established [MENA 9 Jun] ..... 31

## JORDAN

- Ministry Official on Water Resources, Rising Salt Content [AL-RA'Y 4 Jun] ..... 32

## SYRIA

- Government Investigates Safita Water Pollution [AL-THAWRAH 23 May] ..... 32

## SOVIET UNION

- Commission Endorses Environmental Protection Bill [TASS 30 May] ..... 34  
Environmental Issues Arouse Concern in Polls [Moscow World Service 31 May] ..... 34  
Official Proposes 'Ecological Bank' for Environmental Funding [N. Belyayev; PRAVDA 27 Apr] ..... 34  
Scientist's Theory on Ozone Holes Cited [TASS 30 May] ..... 35  
Moldavian Authorities Create 'Ecological Police' to Monitor Environment ..... 36  
Plan Borrows From Austrian Model [G. Kostaki; SOVETSKAYA MOLDAVIYA 18 Mar] ..... 36  
Public Reaction to Plan [SOVETSKAYA MOLDAVIYA 28 Mar] ..... 38  
Import, Use of Radioactive Syrian Mineral Fertilizers Investigated [V. Volovich; TRUD 17 May] ..... 40  
Government Moves Toward Closing Chernobyl [PRAVDA 1 Jun] ..... 41  
FRG Firm To Decontaminate Chernobyl Metal [Kiev International Service 29 May] ..... 42  
Chernobyl-Related Secrecy Termed Injurious to Population ..... 42  
[L.F. Brovchenko; RADYANSKA UKRAYINA 30 Mar] ..... 42  
Measures to Counteract Radioactive Contamination in Ukraine Ignored ..... 43  
[S. Nedourov; PRAVDA UKRAINY 12 May] ..... 43  
Ukrainian Nuclear Power Plant Picketed [Paris AFP 9 Jun] ..... 44  
Belorussian Strikes Protest Ongoing Chernobyl Aftermath Exposure ..... 44  
[Y. Petryayev, O. Shadyro and S. Savrasova; POISK No 15, 14-20 Apr] ..... 44  
Poor Equipment Blamed for Nuclear Safety Problems [PRAVDA 18 May] ..... 47  
Voronezh Voters Reject Nuclear Plant [KOMSOMOLSKAYA PRAVDA 24 May] ..... 47  
Khmelnitskiy Anti-Nuclear Power Plant Actions Spread [Kiev International Service 27 May] ..... 48  
Geographer Summarizes Ukrainian Ecological Concerns ..... 48  
[F. Zastavnyy; EKONOMIKA SOVETSKOY UKRAINY No 3, Mar] ..... 48  
Potential for Catastrophe Seen at Yuzhnyy Port Chemical Works ..... 55  
[G. Grudev and D. Rakhmanin; VODNYI TRANSPORT 8 May] ..... 55  
Radiation Added to Azov Sea Pollution Hazards [Moscow Television Service 4 Jun] ..... 58  
Elevated Radiation Levels Around Mariupol Reported [TASS 25 May] ..... 59  
Goskompriroda Chairman on Leningrad Flood Barrier Construction ..... 59  
[Helsinki Domestic Service 5 Jun] ..... 59  
Commission To Examine White Sea Pollution Incidents [Moscow Domestic Service 4 Jun] ..... 59  
Rally in Arkhangelsk Protests Nuclear Test Site [Vilnius Domestic Service 4 Jun] ..... 59  
Bratsk Industrial Development Reviewed as Pollution Culprit [Moscow Television Service 22 May] ..... 60  
Transcarpathian Radar Station Plan Halted [Moscow Television Service 4 Jun] ..... 60  
Commission Discusses Aral Sea Pollution Problems [Moscow Television Service 23 May] ..... 61

Kazakhstan To Stop Semipalatinsk Nuclear Tests [Belgrade TANJUG 5 Jun] .....	61
Supreme Soviet Deputies Tour Semipalatinsk Test Site [TASS 11 Jun] .....	61
Deputies Differ on Semipalatinsk Test Site Health, Safety Issues [TASS 11 Jun] .....	62
People's Deputy on 'Psychological' Illnesses at Semipalatinsk [Moscow Domestic Service 11 Jun] .....	63

## WEST EUROPE

### AUSTRIA

Environment Seen As Key Campaign Issue [DER STANDARD 23 Apr] .....	64
--	----

### DENMARK

Government Plan To Cut Fertilizer Runoff Water Contamination [BERLINGSKE TIDENDE 9 May] .....	64
--	----

### FEDERAL REPUBLIC OF GERMANY

Vegetable Oil as Alternative Fuel Source Studied [Rainer Olbert; Munich SUEDEDEUTSCHE ZEITUNG 3-4 Mar] .....	66
---	----

### FINLAND

Study Reveals Acid Rain Forest Devastation [HELSINGIN SANOMAT 1 Apr] .....	68
Chrome Levels in Sea Near Tornio Sharply Increased [Helsinki Domestic Service 11 Jun] .....	68

### ITALY

FIAT To Establish Pollutants Treatment Program [L'UNITA 18 May] .....	68
ENEA President on Washington Global Warming Conference, Nuclear Power [LA REPUBBLICA 18 Apr] .....	69

### NORWAY

Majority of Citizens Said To Favor Environmental Taxes [AFTENPOSTEN 5 May] .....	70
--	----

### **Soviet-U.S. Conference on Environment Opens in Sochi**

*LD0406133190 Moscow TASS in English  
1152 GMT 4 Jun 90*

[Text] Sochi, June 4 TASS—The Soviet-American conference "Economic Instruments of Environmental Protection—from Theory to Practice" opened in Sochi today.

"Soviet and American scientists assign special importance to the fact that rational use of natural resources was one of the subjects discussed at the Soviet-American summit. This discussion ended with an agreement to establish a Soviet-American cooperation for the sake of the planet," chairman of the conference's organising committee Academician Abel Aganbegyan said.

"American experts will speak about economic measures to protect the air space, the modernization of the U.S. water conservancy policy and the practice of imposing economic sanctions for damage to nature.

"Soviet scientists will report on measures of restructuring the system of monitoring the use of natural resources, the system of planning environmental protection in the Soviet Union, the economic aspects of ecological safety as well as ecologo-economic modelling and its practical application. [no closing quotation marks as received]

### **Moscow Climate Change Meeting Prepares SWCC Document**

*LD2805140690 Moscow TASS in English  
1356 GMT 28 May 90*

[Text] Moscow May 28 TASS—The intergovernmental group of experts on climate changes met today in Moscow to draw up recommendations on the socio-economic and ecological consequences of climate changes. The document will be submitted in November to the Second World Climate Conference (SWCC) and in December—to the 45th U.N. General Assembly.

"Global warming due to the accumulation of carbon dioxide and other gases in the atmosphere, producing the 'greenhouse effect', is among the key ecological problems of recent years. The intergovernmental expert group was set up in 1988 on the basis of the world meteorological organisation and the United Nations Environment Programme (UNEP) to draw up the necessary recommendations. Taking part in its work are leading world climatologists," Yuriy Izrael, chairman of the USSR State Hydrometeorological Committee, told TASS.

During the meeting specialists from 45 countries will evaluate the influence of climatic changes on agriculture and forestry, water resources, industry, transport, power engineering, human habitation and air quality.

### **International Environment Protection Meeting Opens in Bulgaria**

*AU0406185290 Sofia BTA in English  
1736 GMT 4 Jun 90*

[Text] Varna, June 4 (BTA)—The meeting Eco '90 of the International Club for Ecological Culture began on the eve of the International Day of Environment Protection. Subject of discussion is the ecological science, education and art for survival of life in the planet. The meeting is with the participation of guests from France and the FRG.

Eco Consortium will be founded which will promote the development of projects and prognoses. The International Club for Ecological Culture was founded in 1988 after Bulgaria's initiative and was registered in Vienna. Forty countries are participating in it. As a non-government association its objective is to be a permanent center for free contacts and exchange of information and experience and for ecological culture.

### **Nuclear Power Plant Safety Conference Held in Soviet Crimea**

*LD2305080590 Moscow TASS International Service  
in Russian 1200 GMT 22 May 90*

[Text] Kiev, 22 May (TASS)—Ensuring the reliable and safe work of nuclear power stations is the main theme of an international conference on radiation materials science which opened today in Alushta, a health resort town on the Black Sea coast of the Crimea.

Scientists from Britain, Italy, the United States, France, the FRG, Japan and other countries are taking part. Together with Soviet colleagues they will discuss a vast range of questions concerned with the development of radiation-safe structures for power equipment.

Ivan Neklyudov, a professor at the Kharkov physico-technical institute of Ukraine's Academy of Sciences, stated that scientists at the institute are now developing ways of creating radiation-proof materials of a new type for future thermonuclear reactors and reactors that are functioning today, and also containers in which waste products can be removed from atomic power stations. A promising task to obtain new low-active alloys for thermonuclear reactors is being resolved.

Compact accelerators which, emitting ionic-plasma flows, strengthen and create fundamentally new materials have been built in Kharkov. By "firing" elementary particles the accelerators are also capable of manufacturing semi-conductor and other films; sterilizing medical instruments; and "printing" circuits for integral schemes for super-class computers.

## **Finnish-Soviet Environmental Interaction Expanding**

### **Concern Over Kola Emissions**

*90WN0041A Helsinki HELSINGIN SANOMAT  
in Finnish 31 Mar 90 p 14*

[Article: "Finland and USSR Trying To Develop Common Measurements for Calculating Emissions"]

[Text] The Finns and the Soviets are trying to develop common measurements for calculating emissions to check emissions on the Kola Peninsula. This way it would, for example, be easier to observe agreements limiting sulphur discharges.

Up to now, information on how the Soviets arrive at figures reported for the Kola area has not been doled out to Finland. Chief inspector Erki Kantola of the Lapland Provincial Administration stated that numerical data on the area have been obtained, but the overall picture is incomplete.

The Finnish-Soviet Joint Commission's Air Protection Committee has now undertaken to resolve the problem. The first talks will probably be held in May or September. The Laplanders' goal is to be able to exchange information directly on measurements with their Kola counterparts.

Lapland's own pollutant discharges are well-nigh nonexistent in comparison with the emissions that cross our eastern border.

### **Finns Urge Quicker Action**

*90WN0041B Helsinki HELSINGIN SANOMAT  
in Finnish 3 Apr 90 p 6*

[Article: "Finns Insist on Quick Reduction of Kola Emissions; Soviets Intend To Only Cut Sulphur Emissions in Half by 1995"]

[Text] Rovaniemi (HS)—Modernization of the Kola mining industry seems to be slowing down because of Soviet dawdling. In the Finns' opinion, plant technology could be gotten into shape in three years' time. In the opinion of Outokumpu Company general manager Pertti Voutilainen, investments would also show a profit, since productivity would be correspondingly improved.

The Soviets, however, have been dragging their feet. In the current negotiations, they want to stick to the agreement concluded with the Finns, according to which Kola sulphur emissions would only be cut to half of their present volume by 1995. The Soviets' ultimate goal is over three times as much as could be achieved with Western technology.

No more so in Voutilainen's opinion than in Lapland Province Governor Asko Oinaa's opinion, the rate at which they are proceeding will not do. It was revealed at a seminar on Kola organized on Monday in Rovaniemi that discharges could and should be reduced to five

percent of what they are now. If this is not done, part of Lapland will be destroyed. Lapland's tolerance is actually lower than the Kola area's.

### **Eastern Neighbors Are in No Hurry**

The Soviets do not, however, want to rush things. The new head of the Helsinki trade delegation, E. Inkin, quoted an old Russian proverb in Rovaniemi: "Measure seven times and cut once."

"No matter how much I respect Mr. Voutilainen," Inkin cautioned, "I point out to you that there are differing views on the methods and on lowering the sulphur dioxide level. We realize that the work should be speeded up, but it cannot be rushed; rather, all the technical possibilities must be considered. What we're talking about is a very capital-intensive sector."

It also seems that the Soviet Union is incapable of deciding with what kind of terms it is going to handle foreign financing, although it does admit that the country's material resources are inadequate to speed up the timetable.

The Finnish Government has already announced that it views the modernization of industries that are close to the border under the same terms as those that apply to domestic investments in the environment, which in practice means that part of the loan would be a grant. As for the Nordic funding institutions, they are prepared to finance the planned projects together. In spite of this, they are still deliberating on Kola.

In Rovaniemi, Environment Ministry department head Lauri Tarasti demanded that environmental protection be adopted as part of the Finnish-Soviet economic program.

### **No One Knows Real Level of Emissions**

The Finns no more so than the Soviets are not sure just how big the discharges in the Kola area really are.

In Rovaniemi, a representative of the Environment Ministry acknowledged for the first time that the ministry has no reliable information on the level of emissions. In chief inspector Ilkka Luotomo's opinion, it should be more accurately determined. Similarly, G. Kalabin, the first vice chairman of the Kola Science Center, admitted that nowhere near all the data published as industrial discharge figures are based on measurements, but that they are arrived at on the basis of the composition of used raw materials, among other methods.

Last January the Finnish-Soviet Joint Economic Commission appointed a committee to investigate how and under what conditions Kola industry could be modernized. The committee has been given until May to complete its investigation.

### Disagreement on Method

According to general manager Pertti Voutilainen, the only thing they agree on so far is that sulphur discharges should be reduced. They have not reached agreement on a timetable and the means for accomplishing this.

The Soviets have their own method that they would prefer to employ on Kola. According to Voutilainen, they may achieve the desired result with the technique in question. This is, however, uncertain, and the method entails risks.

Moreover, the Soviets want to modernize production in two phases. Discharges would be cut in half by 1995, and 80-85 percent of the sulphur gases would be recovered by 1998, as compared with the present rate of recovery.

Voutilainen said that he was certain that the 30,000 tons of discharges ultimately projected in, for example, the Petsamo-Nikkeli area would exceed both the amount the natural environment could tolerate and what the local population could endure.

"The Outokumpu plant at Harjavalta does not even accept 8,000 tons of discharges any more, even though the environment is not as vulnerable as on Kola. We're trying to reduce the amount to from 3,000 to 5,000 tons."

### Plants Polluted, Soil Dying

The Soviets appear to be relying on their own capabilities more than the Finns do. In Rovaniemi, A.M. Kov-alchuk, the environment minister for the Russian Republic, gave evidence of how much emissions had been reduced these past few years regardless of how much production has increased, and he also produced data from outside the Kola area: The condition of the water on the Karelian border is satisfactory; the volume of unpurified waste water has been reduced by almost half in Soviet Karelia; and the quality of the water in Lakes Onega and Ladoga is good.

Science Center vice chairman G. Kalabin's data were considerably more gloomy. The plants on Kola annually produce 250 million tons of solid waste. During the same period, they discharge 800,000 tons of hazardous materials into the atmosphere. Total discharges of heavy metals have risen to 10,000 tons, and industrial and local community discharges of waste water into the waterways of the area to 460 million tons. Over half of these amounts are discharged into the waterways in an unpurified state.

Kalabin's institute has also studied the absorption of pollutants by the soil, and the plant and animal life of the area. According to him, about 10,000 hectares of the terrain on Kola is completely dead. The results elsewhere sound just about as hopeless as this.

"The lingonberries in the Montegorsk and Nikkeli areas are full of sulphur," Kalabin reported in Rovaniemi, "but there is even more of it in the blueberries. There's

also nickel and cobalt in the lingonberries, whereas the blueberries manage to ward off these elements better. However, copper accumulates in the blueberries."

### Joint Gulf of Finland Survey

90WN0041C Helsinki HELSINGIN SANOMAT  
in Finnish 30 Mar 90 p 13

[Article: "Finnish Scientists To Go to Ladoga and Soviet Territorial Waters Next Summer"]

[Text] Lappeenranta (HS)—Next summer, Finns for the first time will have an opportunity to study the waters of the Gulf of Finland from the Soviet side of the border. Ladoga will also be opened to Finnish scientists. They will be able to go there in the company of experts from Petrozavodsk.

Acquired last summer for the Saimaa waterway and well equipped, the research ship Muikko will be leaving for the Gulf of Finland in August. It will operate between the Republic and Kronstadt. The seagoing research ship Aranda will also participate in the operation. It will ply Soviet waters in the central Gulf of Finland.

Bureau chief Lea Kauppi of the Water Authority said that the objective is to benefit as much as possible from these expeditions. Biologists, limnologists, and other experts in this field of study will be participating. Many samples will be taken and, on the basis of these, they will try to get an idea of the condition of the waters on the Soviet side of the border.

Next summer, Soviet scientists will also get firsthand data from Ladoga. They will be going on a sampling expedition to Lakes Onega and Ladoga early this summer, along with scientists from Petrozavodsk. It is possible that the expedition to be conducted with the Petrozavodsk research ship will be extended to the Gulf of Finland from Ladoga via the Neva.

### Paper Views Cooperation

90WN0041D Helsinki HELSINGIN SANOMAT  
in Finnish 1 Apr 90 p 2

[Editorial: "Baltic and Regional Cooperation"]

[Text] The ideological barrier between East and West has for a long time divided the environment of the Baltic into two parts. The commercial and technological differences on the two sides of the barrier are great. However, the division need not be forever. In its report, a commission composed of businessmen explores concepts involving North European regional cooperation, unexploited possibilities, and future trends of development. The initiative is warranted since official Finland is notoriously reticent in these matters.

The present condition of the Baltic is a consequence of both the West's high standard of living and the CEMA countries' low one. An agreement pertaining to protection of the sea went into effect as early as 1980, but the results are rather modest. It will not be cleaned up if the



CEMA countries do not open their doors to experts from and the technology of the other Baltic nations. Ample economic aid—which is available—is also needed.

Over the past few years, Finland's active participation has been predominantly directed toward a Europe in the process of integration, which is indeed justified. Meanwhile, the area close to us has been a blind spot. The latest developments in the Baltic require of us that we also seriously discuss our immediate environment. If cooperation in the Baltic region is successful, it will also lend support to more widespread cooperation in Europe.

Regional interaction has clearly increased in the Baltic region. As examples we may cite the air routes instituted by SAS and Finnair, and Finland and Sweden's strong desire to employ skilled labor from the Baltic countries. Fortunately, we do not have to create a communications network from scratch, since business firms and organizations have long since bridged the Gulf of Finland in their relations [with those countries].

If we want to quickly activate the Baltic region as a viable North European area, we must take into account the whole range of human life from culture to the economy.

#### **Finnish-Soviet Kola Pollution Dialogue Continues**

90WN0078B Helsinki HELSINGIN SANOMAT  
in Finnish 5 Apr 90 p 2

[Editorial: "No Room for Hesitation in Kola"]

[Text] The dialogue between Finland and the Soviet Union on environmental problems is off to a good start. The papers given at the Kola seminar held in Rovaniemi, however, show again that there are attitudinal obstacles in addition to the economic restraints on the road to the fastest practical results. The Soviet Union admits the seriousness of the Kola emissions, but, before getting down to action, it cites the old Russian proverb: Measure seven times before you cut.

The Soviet Union has promised to reduce sulfur emissions to half of the present level by 1995, and to a sixth by the end of the decade. This sounds like an ambitious goal. In fact, even after this, the sulfur load has been calculated to be 30,000 tons per year, which, according to Finnish experts, exceeds the tolerance of both nature and man. Outokumpu says that it is able to achieve a much better result in a much shorter time frame. For the Soviet Union, it is a question of money and a shortage of foreign currency but apparently also an attempt to develop its own pollution control technology.

The Kola environmental pollutants seriously threaten the forests in eastern and northeastern Lapland. Hence, Finland has an undisputed right to demand the rapid reduction of the emissions. On the other hand, we do not have the right to require that the Soviet Union purchase the equipment needed for this from Outokumpu. It is the

neighbor's business what technologies and possible commercial solutions it decides on.

It is in the interest of Finland and the Nordic countries themselves to offer the Soviet Union technical and direct financial assistance so that the emissions are reduced. Doubtless, the economic willingness to make a contribution would increase if the Soviet Union were to decide to use Finnish pollution control technology.

#### **Unusual Cloud Attributed to Soviet Nickel Refinery Explosion**

LD0806134390 Helsinki Domestic Service in Finnish  
1200 GMT 8 Jun 90

[Text] According to the Norwegian Meteorological Institute, the so-far-unidentified cloud drifting toward Finland from the Kola Peninsula on Wednesday [6 June] originates from an explosion which occurred at the Severonikel nickel refinery area two weeks ago. Anton Eliassen, department head at the Norwegian Meteorological Institute, says extremely dangerous chlorine gases would have escaped into the air in the explosion. If the cloud, approaching Finland on Wednesday, had been caused by the explosion, it will probably be considerably diluted when it reaches the Helsinki and Stockholm regions this afternoon. According to the Norwegians, it will no longer cause harm to humans.

The Paatsjoki regional radio in northern Norway has interviewed a Soviet environment researcher, (Valeriy Zigigalov), according to whom a strong explosion occurred at the Severonikel refinery in the Apatiti mining community two weeks ago. (Zigigalov) thinks that if the winds had not dispersed the chlorine gases, the consequences of the explosion would have been extremely destructive for the residents of the town of Monchegorsk.

The measurements of the Finnish Meteorological Institute have not found anything exceptional in the cloud formations. At this stage the institute does not want to comment on Norwegian reports in more detail.

According to the Soviet Meteorological Institute, no information on explosions or chlorine emissions have been registered at any measuring points in the Kola Peninsula. The Soviet Meteorological Institute told Yleisradio's [Finnish Broadcasting Company] Moscow correspondent that reports circulating in public about the rise of a chlorine cloud to a height of three kilometers cannot be correct because chlorine, as a heavy substance, will not rise that high.

#### **Finnish, Soviet Officials on Alleged Nickel Refinery Explosion**

LD0806144390 Helsinki Domestic Service in Finnish  
1300 GMT 8 Jun 90

[Text] [Presenter] The Finnish rescue authorities received reports on the alleged Severonikel refinery explosion from the Norwegian information media this

afternoon. The Ministry of the Interior rescue department does not consider it necessary to take immediate measures because the Norwegians think the cloud is between Helsinki and Stockholm at the moment. In the view of the Finnish rescue authorities there cannot be any danger any longer.

Marja-Helinae Peltonen interviews Veikko Peltonen, rescue department head.

[Begin recording] [M-H. Peltonen] did you confirm the matter with the Soviets, or do you consider such confirmation necessary?

[V. Peltonen] Well, I do not see any very urgent need that we ought to start doing it now at the weekend, but perhaps this will come up in the contacts between experts. According to the information we have received, this has come to the knowledge of the Norwegians in some joint gathering of Norwegian and Soviet scientists.

[M-H. Peltonen] The Norwegians claim the cloud will possibly be in Helsinki and Stockholm regions this afternoon. Does this cloud possibly pose some danger?

[V. Peltonen] Not at all. If, as the Norwegians have estimated, it had contained some kind of chlorine emissions, well, chlorine is a substance heavier than air, and as two weeks have passed it would have dispersed in any case into other substances, chiefly chlorides, and the levels would be so negligible that it would be of no significance in comparison, for instance, with other pollution in the air. [end recording]

[Presenter] Nikolay Vorontsov, chairman of the Soviet State Committee for Environmental Protection, who is visiting Saariselkae [in northernmost Finland], assures that according to the information he has received the alleged explosion did not occur in the Monchegorsk area. The Soviet Meteorological Institute also says that no information on an explosion or chlorine emissions has been registered at the measuring points in the Kola area. The Soviet Meteorological Institute told Yleisradio's [Finnish Broadcasting Company] Moscow correspondent that the reports circulating in public about the rising of the chlorine cloud to a height of three kilometers cannot be correct because chlorine, as a heavy substance, will not rise to such a height.

#### **Soviet Official Says Kola Chlorine Leak Possibly 'Concealed'**

*LD0906155590 Helsinki International Service  
in Finnish 1500 GMT 9 Jun 90*

[Text] Nikolay Vorontsov, chairman of the Soviet State Environmental Protection Committee, considers it possible that information about the possible chlorine leak in the Kola Peninsula last month has been concealed. Vorontsov himself has not received any information about the alleged accident in Monchegorsk. Vorontsov said today in Lappeenranta [southeastern Finland] that

it is possible Moscow has not been given the information. Information about the Kola accident has been published in a newspaper published in Soviet Karelia.

#### **CEMA-EC Talks Explore Environmental Coordination**

*LD1206074390 Moscow TASS in English  
0657 GMT 12 Jun 90*

[By TASS correspondent Georg Mikhailin]

[Text] Moscow June 12 TASS—During negotiations between the Council for mutual Economic Assistance (CEMA) and the European Community (EC) that opened here today, representatives of the two sides will explore ways to pool the environmental protection efforts of the two organizations.

This is the fourth meeting of experts of the council's secretariat and the commission of the European communities since the establishment of official relations between the two organisations in June 1988.

During the negotiations, to last for two days, the sides will discuss specific forms and methods of ecological cooperation between the CEMA and EC.

At the initial stage of interaction it is intended to establish exchanges of information and later, on its basis, to take joint measures.

There might be coordination between representatives of the council and EC at various international environmental forums.

The sides will also outline possible cooperation in the area of statistics and standardisation. The CEMA delegation to the negotiation is headed by Stefan Zawodzinski, deputy secretary of the council. The EC delegation is headed by John Maslen, head of the department of the commission of the European Communities for trade with European countries with state monopoly on foreign trade.

#### **Austrian Leaders Make Environment Proposals at Energy Meeting**

*AU1006123390 Vienna DIE PRESSE in German  
9 Jun 90 p 2*

[Report by "WB": "Mock: Liability for Nuclear Accidents To Be Anchored in International Law"]

[Text] Vienna—Countries which continue to use nuclear energy must also assume liability for damages caused by nuclear accidents outside their territory. This demand was stated by Foreign Minister Alois Mock at a function of the Austrian League of the United Nations Organization in Vienna on Friday, marking International Environment Day. He said that a relevant basis should be anchored in international law.

Chancellor Franz Vranitzky proposed founding an international electricity supply concern allowing countries

with energy production that pollutes the environment to switch over to new technologies. In a panel discussion, Hans Blix, International Atomic Energy Agency director general, defended nuclear energy as one of the most effective forms of energy.

### **Balkan Energy Ministers Meeting Notes Ecology Concerns**

*AU3105141490 Tirana ATA in English  
1606 GMT 30 May 90*

["Joint Communiqué of the Meeting of the Energy Ministers of the Balkan States"—ATA headline]

[Text] Tirana, May 30 (ATA)—In the framework of the process of the Balkan cooperation, the ministers of energy of the Balkan states held a meeting in Tirana, from 29 to 30 May 1990.

The chairman of the Council of Ministers of the People's Socialist Republic of Albania, Adil Carcani, sent a message of greetings to the meeting.

The meeting was attended by the delegation of the People's Republic of Bulgaria, headed by the minister, chairman of the Energy Committee, Nikola Todoriev; the delegation of the Hellenic Republic, headed by secretary general of the Ministry of Industry, Energy and Technology, Yeoryios Apostolakis [name as received]; the delegation of Romania, headed by the minister of electrical energy, Adrian Georgescu; the delegation of the Republic of Turkey, headed by the minister of energy and natural resources, Fahrettin Kurt; the delegation of the Socialist Federal Republic of Yugoslavia, headed by the federal secretary for energy and industry, Stevan Santo; and the delegation of the People's Socialist Republic of Albania, headed by the minister of industry, mining and energy, Dr. Besnik Bekteshi, who was also elected chairman of the meeting.

In a constructive spirit of mutual respect, the ministers of energy exchanged views on the ways and possibilities of multilateral cooperation among the Balkan states in the field of energy.

Bearing in mind the interest and determination of their countries to strengthen the multilateral cooperation, the ministers stressed the necessity of joint efforts for its further development in the framework of their international obligations.

The ministers pointed out that the economic progress of the Balkan countries and their industrial potential offer opportunities of deepening and diversifying the industrial, technical and scientific cooperation in the energy sector. They recommended the study of the possibilities of expanding bilateral and multilateral cooperation in the field of energy planning and the implementation of energy projects, in the exploitation and utilization of solid fuels of low calorific value, in coal upgrading through utilization of advanced technologies, in the improvement of combustion processes at the existing

and new plants by means of utilization of up-to-date combustion technologies for solid fuels of low calorific value, in the implementation of advanced oil and gas drilling technologies and in ensuring a high ultimate oil recovery, in the exploitation and utilization of bituminous shales and sands, in the conservation and efficient use of energy, in retrofitting of groups in thermo-power stations with long operation period, in technologies of reducing the emissions of SO<sub>2</sub>, (noxious) fly ash etc., in flue gases.

The ministers of energy noticed that their meeting constitutes a contribution to the furthering of the multilateral cooperation in the energy sector and of the Balkan cooperation as a whole. They laid stress on the need to agree on concrete measures to utilize the potentials of the Balkan countries for the development of the mutual cooperation in the energy field, in harmony with the priorities and interests of each country.

The ministers expressed their common wish to work towards the conclusion of bilateral and multilateral agreements on the improvement of existing energy services and the establishment of new systems as well as on an optimum utilization of the potential energy resources available in the countries of the region. They recognized the benefit of technical and technological cooperation through transferring know-how, exchange of expertise, conferences, seminars, symposia, consultancy services and the joint research and development projects, in accordance with the interests, possibilities and legislation in force in each of the countries.

The meeting highly appraised the activity of the coordinating committee for the development of the interconnection of the electric power transmission systems of the Balkan countries and its contribution for the creation of the preliminary conditions for the interconnection of the electric power systems of the Balkan countries.

Recognizing the importance of the joint operation in interconnection, the ministers agreed to recommend to the relevant electric power authorities to consider the transformation of the existing committee into a committee of the electric power systems of the Balkan countries so that, alongside with the investigating activity, it may pursue the realization of the interconnection and create the necessary conditions to increase energy exchanges among them. To this end, a working group of representatives of the electric power systems should meet in the second half of July 1990 in Ohrid to prepare the draft statute of the above-mentioned committee of the Balkan countries. This draft statute will be considered and possibly endorsed by authorized representatives of the electric power systems of Balkan countries during the next meeting in Ankara.

To accomplish the Balkan cooperation in the fields of oil and gas, coal and other energy sources, it was agreed to set up joint groups of specialists for common or specific problems in these fields. Also to ensure a close cooperation in relation to the environmental aspect of the energy

sector, the ministers agreed upon to exchange all relevant information and know-how and to set up joint groups of specialists for energy and its influence to environmental issues.

In order to coordinate the activity of these groups, to examine all proposals in greater details and to prepare further multilateral activities in all fields of energy, the ministers agreed to propose to their governments that meetings of high officials and experts in the energy field, be held periodically on a rotation basis.

The first meeting will be held in Greece in the second half of 1990.

In view of the depletable character of the energy resources and the growing concern for the environmental protection, the ministers acknowledged the necessity of cooperation and coordination of efforts, for research, development and utilization of new and renewable energy resources.

The ministers agreed that the marketing of primary energy commodities constitute an important field for the strengthening of economic cooperation and development of trade relations among the Balkan countries.

They underlined the significance of creating and developing the relevant energy infrastructure in each Balkan country for the increase of cooperation and the rational exploitation of the energy resources and systems.

The ministers agreed that the Government of the People's Socialist Republic of Albania inform the United Nations Economic Commission for Europe on the results of this meeting.

The ministers expressed their appraisal that such meetings serve the further promotion of Balkan cooperation in the field of energy. To this end, it was agreed to propose to their governments that the meetings of the energy ministers of the Balkan countries be held periodically on a rotation basis. The next meeting will be held in the People's Republic of Bulgaria in 1992.

The meeting proceeded in a friendly and constructive atmosphere. The ministers expressed their appreciation for the excellent organization of the meeting as well as for the warm hospitality extended to them by the Albanian Government.

#### **FRG Offers Bulgaria Environmental Protection Assistance**

*AU2905170390 Sofia DUMA in Bulgarian  
28 May 90 p 2*

[Stanislav Kolev report: "FRG To Supply Bulgaria With Air Pollution Control System"]

[Text] The FRG will supply our country with an automatic system worth \$100,000 that will control air pollution. The system will receive and process data provided by the regional control stations. This was confirmed by

Klaus Toepfer, FRG minister of environment, nature conservation, and reactor safety, during talks with his Bulgarian counterpart, Aleksandur Aleksandrov.

The meeting between the two ministers took place in Munich during the visit of the Bulgarian delegation in connection with the opening of the IFTA-90—the greatest trade fair in the world for environmental protection machines, equipment, and technology—that took place in Munich from 22 to 26 May.

During the talks Mr. Toepfer pointed out that despite the great financial and other commitments that emerged after the integration processes between the two Germanies began, his country's government confirms its readiness to continue the development of cooperation with other countries in Eastern and Central Europe, including Bulgaria, in the sphere of ecology.

The two ministers also reviewed the possibilities of cooperation in protecting the environment near electric power plants. Minister Aleksandrov's proposal to organize a conference of the Danubian countries, under FRG auspices, at which a new convention on preserving the water of this European river will be adopted, was greeted with interest and satisfaction.

#### **International Ecological Consortium Formed in Bulgaria**

*AU0706094090 Sofia BTA in English  
2115 GMT 6 Jun 90*

[Text] Varna, June 6 (BTA)—The "Eco" Consortium was established here on an initiative of the International Club of Ecological Culture.

The consortium will involve Prof. Andre Pavia, director of the Securitec EC Euroclub, and Prof. Dr. Ivan Sekulov, director of the Water Institute in Hamburg, FRG.

Three priority projects were adopted: ecology and human health, ecoproblems of the Danube and the Black Sea and ecoagriculture.

#### **CSFR Foreign Minister on Gabcikovo, Temelin Power Projects**

*AU1006134190 Bratislava NARODNA OBRODA  
in Slovak 2 Jun 90 p 3*

[Unattributed report: "A Tangle of Contradictory Interests"]

[Excerpts] Mutual relations between the neighboring states of Austria, Hungary, and the CSFR regarding energy production are developing as a tangle of contradictory interests. Everyone wants to be a consumer and no one wants to be a producer. [passage omitted on differences between Hungary and Czechoslovakia regarding Gabcikovo and between Austria and Czechoslovakia regarding Temelin] Jiri Dienstbier, foreign minister, summarized the Czechoslovak standpoint in his conversation with NARODNA OBRODA:

We are destroying our environment by using coal—this must be stopped at all costs. Nuclear power stations are cleaner and hydro- electric water plants would be even better.

Hungarians do not want to hear anything about the hydro-project on the Danube nor do they want to hear anything about paying the bill which amounts to billions. The Austrians are willing to offer us attractive credits amounting to billions—which will have to be repaid—for the reconstruction of our energy base, in order to stop our nuclear program—but brown coal power plants are an obstacle for us.

Billions have been poured into in Gabcikovo so let them produce energy for us, at least. If we are to do more work on narrowing the Danube in order to raise its level to its previous height then we have to count on spending more billions.

If we are not supposed to finish the construction of Temelin then someone must tell us what it should be replaced with. If the people decided that they do not need refrigerators, washing machines, etc., then the situation would be different. But the industrial demands are such that we would need about ten Temelins.

#### **Hungary Signs Environmental Aid Agreement With EC**

*LD0506134190 Budapest MTI in English  
1055 GMT 5 Jun 90*

[Text] Budapest, June 5, 1990 (MTI-ECONews)—Mr [name indistinct] di Meana, senior official in charge of the EC Committee on Environmental Affairs, and Sandor K. Keresztes, Hungarian minister of the environment, signed an agreement in Budapest on Monday which will give Hungary 25 million ECU (about 30 million USD) [word indistinct] the end of the year under the group of 24's Phare [as received] programme to carry out 22 environmental and energy-saving projects.

Of the 25 million ECU, 4.8 million will be invested in cleaning the air, 3.9 million in water purification, 3.3 million in waste disposal processing, 5.9 million in cleaner power plants and geothermal energy, and 3.2 million ECU in nature conservation.

A further [figure indistinct].5 million ECU has been earmarked for research and development and cooperation between the EC and Hungary, while two million will go towards the Central and East European Regional

Environment Centre to be set up in Hungary at the initiative of the United States.

Representatives of Central and East European countries will also attend the forthcoming conference of EC ministers for the environment to be held in Dublin.

#### **PRC Environmental Delegation Visits USSR**

*OW2005201290 Moscow International Service  
in Mandarin 0200 GMT 16 May 90*

[Report on an interview with (Lu Guize), director of China's Environmental Protection Institute, with station reporter (Kurochev)—place and date not given]

[Excerpts] Dear listeners: A delegation from the Environmental Protection Institute of the Chinese Academy of Sciences is now continuing its visit in the USSR. Here is a report by our station reporter (Kurochev):

This is the second round of meetings between Soviet and Chinese experts in environmental protection problems. The first round was held last year when a delegation of the Environmental Committee of the USSR visited a series of cities in China. Currently, Chinese scholars are returning their visit. This is my interview with (Lu Guize), the director of China's Environmental Protection Institute:

[Kurochev] Could you kindly introduce the purpose of your visit?

[Lu Guize] I am very glad to answer this question. The main purpose of our visit to the USSR is to understand the Soviet situation in environmental and bioecological protection as well as the seriousness of pollution and the situation in policy, plans, and strategic formulation in your country. At the same time, we would like to introduce what we have done in China after the founding of China Environmental Protection Institute so that we can join together to launch scientific and technological cooperation in environmental protection. [passage omitted]

[Kurochev] Please tell us about the situation of Sino-Soviet cooperation in environmental protection and its prospects? In your opinion, what will such cooperation mean to both countries?

[Lu Guize] Our premier just visited the USSR and signed a series of agreements, including a scientific and technological agreement. Environmental protection cooperation is only a part of this agreement. We have very broad prospects in this field. Both Soviet and Chinese colleagues are willing to cooperate in this field. [passage omitted]

## INTER-AFRICAN

### Environmental Policies Coordination Failures Noted

90WN0072A Paris *JEUNE AFRIQUE ECONOMIQUE*  
in French Apr 90 pp 66-67

[Article by Carmen Diop]

[Text] Unlike the ICDCS [(Permanent) Interstate Committee for Drought Control in the Sahel] in the western Sahel, the eastern Sahel's counterpart continues to fall short of its goals.

The officials of the UN Environment Program (UNEP) put it bluntly: "The environment is the fashion now, but that fashion could last a long while, given the seriousness of the problems." Indeed, the environment is on the agenda everywhere and 1989 has been declared the "Year of the Environment" at the United Nations.

But Africa's drought-fighting organizations have a mixed performance record. On the one hand, West Africa's (ICDCS) has achieved a certain degree of maturity and established its credibility over the past six years by implementing major subregional projects. On the other hand, East Africa's four-year-old Inter-Governmental Authority on Drought and Development (IGADD) is still trying to find its way between some of its members' national problems and uneasy relationships. In Stockholm in 1972, a first conference on the environment adopted the Declaration of Environmental Policies and Procedures. In 1989, the developed countries explicitly recognized for the first time their role in the deterioration of the world environment. Population growth in the Third World and the ill-considered exploitation of natural resources received their rightful share of the blame for the degradation of the environment. Everyone agrees that the North must increase its contributions to help the developing countries shoulder their responsibilities in environmental protection. Thus, it has been decided that desertification control would be made a priority matter at the 1992 summit in Brazil.

In March 1989, this question was the theme of a special summit initiated by France, Norway, and the Netherlands. Last year, the UNEP's budget rose from 30 million to 40 million dollars thanks to increased contributions from its members. Its budget should rise to 100 million dollars in 1992. Condemning the industrial countries for their responsibility in carbon gas emissions, France proposed last May that they pledge to halt this form of pollution at present levels. It has, in fact, been established that the various gases produced by the modern world are the cause of global warming and—among other things—the accelerated desertification of the planet. This proposal is to be added to the conventions that will be submitted to the 1992 UN Conference on the Environment and Development. The international community also envisions the creation of a world climate fund. Some countries, including the Netherlands, are prepared to make large sums available to it.

In Africa, there is a real awareness of these problems. Starting in 1986, it led to the organization of a ministerial conference on the African environment and the creation of the UN Priority Program for African Recovery. The African Development Bank (ADB) is the continent's largest donor with a five-year lending program of 12.5 billion dollars. In November 1989, under ADB leadership, natural resource managers and planners from 12 African countries met with European consultants and studied a report on soil erosion, nutritional and organic matter loss in soils, water salinization, and deforestation in the Sudan-Sahel zone.

But another study, by the United Nations Food and Agriculture Organization (FAO), found that the plant cover in the continent's east and mountainous regions is also in danger. Various researchers state that Lake Victoria (Africa's largest and the world's third-largest lake) is headed for ecological collapse. In the Horn of Africa, deforestation continues at a faster pace and goats are decimating sparse new growth.

And yet, nothing at IGADD is working. In four years of existence, its vast plans and large budgets have resulted in very few concrete achievements. Last January in Djibouti, the organization's third summit admitted to outright failure when it adjourned 24 hours after it had opened. Concrete action to protect the environment is no doubt limited to countries that enjoy a certain degree of stability. At ICDCS, recognized by the lending community as one of Africa's most effective organizations, disputes between countries are not evaded; they are deliberately raised with the purpose of contributing toward a settlement.

For their part, the east African countries of Djibouti, Ethiopia, Kenya, Somalia, Sudan, and Uganda—which make up IGADD—have not achieved any of the objectives they set for themselves. Their summit meetings are settings for political meetings in essence. At the March 1988 summit, for example, Somalia's head of state, General Mohamed Siad Barre, and his Ethiopian counterpart, Lieutenant Colonel Mengistu Haile Mariam, drew up a plan for the withdrawal of troops from their common border. IGADD's latest conference was to examine the 1988-1989 activities of the executive secretariat, assessing progress on 63 projects representing a budget of some 70 million dollars.

The progress report by the executive secretariat (headed by Kabret Makonnen of Ethiopia) was the subject of numerous criticisms, particularly for delays in executing subregional projects and for expenses incurred in the grandiose renovation of IGADD's headquarters, for which Italy gave 500,000.

Was it a lack of interest in the organization or did national concerns take precedence? Whatever the case, the presidents of only four member countries out of six were present for the conference: Djibouti, Sudan, Kenya, and Uganda.

Mengistu Haile Mariam, absent because of the internal difficulties his country is experiencing and because of the serious famine threatening Eritrea and Tigray, was represented by his vice president. He was, however, elected president of IGADD, in keeping with the organization's by-laws that provide for a rotating presidency in alphabetical order. Also absent from the conference was Mohamed Siad Barre whose relations with Djibouti have encountered some turbulence. He was represented by the assistant secretary general of the ruling party. And yet the secretary general of the Organization of African Unity (OAU) attended the conference.

With Ethiopia's minister of agriculture, Geremew Debele, in the role of the coordinating minister, complete control of IGADD would fall into the hands of one country. To avoid this, the member countries shortened the executive secretary's term from two years to one—perhaps a punishment of sorts for his lack of effectiveness.

In addition, the ministerial conference's report adopted by the heads of state considered it premature to convene a second meeting of donor countries likely to finance IGADD's projects. This admission of failure was attenuated only by the approval of the secretariat's 1990 budget. The budget vote raised the eternal problem faced by Africa's subregional organizations: Uganda, Somalia, and Sudan were ordered to pay up their share of contributions to the institution's operations.

One final note: The next meeting of IGADD ministers is to designate the successor to the Ethiopian Kabret Makonnen. It is scheduled for January 1991.

For several months, there have been numerous consultations in Nairobi between representatives of UN member countries and the director of the UNEP to prepare for the conference in Brazil. The various environmental questions that are being raised there may provide IGADD with the renewed impetus it needs and make the fight against desertification a central concern once again.

## NAMIBIA

### Government Denies Talks on Nuclear Waste Deal

*MB0106195990 Johannesburg SAPA in English  
1436 GMT 1 Jun 90*

[Text] Windhoek June 1 SAPA—The Namibian Government had never had any discussions about the dumping of toxic waste in the country, according to a statement issued in Windhoek on Friday.

“Also, the government has never prevented anybody from indulging in debate about nuclear waste, and will encourage Namibians to discuss the issue as they see fit.”

The statement was in response to local news media reports which claimed the ruling SWAPO [South-West African People's Organization] party had been contacted by international waste disposal brokers to dump toxic waste in isolated parts of the country for a cash consideration of 5.2 billion rands (2 billion U.S. dollars).

**China's Pollution-Related Economic Losses  
Highest in World**

90P30035A Hong Kong CHING-CHI TAO-PAO  
[ECONOMIC REPORTER] in Chinese No 17,  
30 Apr 90 p 41

[Text] Each year China invests 10 billion yuan in environmental protection. This represents 0.7 percent of the

country's gross national product, the largest percentage spent by any developing country. However, China also ranks first in the world for economic losses due to pollution, with losses of 60 billion yuan annually.



## NORTH KOREA

### Success in Development, Protection of Aquatic Resources Claimed

SK0106061490 Pyongyang KCNA in English  
0426 GMT 1 Jun 90

[Text] Pyongyang June 1 (KCNA)—A signal success has been registered in the development, utility and protection of aquatic resources in Korea.

All the rivers and reservoirs of the country have turned into natural fish breeding grounds and some 120 man-made fish farms teem with fishes of various species.

Lakes Yonpung, Taesong, Sohung and 1,700 other reservoirs and 14,000 kilometres of river dikes and hundreds of kilometres of anti-tidal dikes have been built to protect land and aquatic resources.

In recent years fish resources in the river Taedong increased more than ten times with shoals of fish swimming upstream from the West Sea through the fish-ways of the West Sea barrage, a grand monumental edifice, and the rivers flowing through industrial zones also teem with fishes.

In the East and West Seas underia pinnatifia, tangle, mussel, oyster and other seafood of dozens of kinds are cultivated for the betterment of the people's living.

## MONGOLIA

### Green Party Officially Registered in Mongolia

LD2705104990 Moscow TASS International Service  
in Russian 1155 GMT 26 May 90

[Text] Ulaanbaatar, 26 May (TASS)—The new Green Party has been given official recognition in Mongolia. The Collegium of the Republic's Supreme Court has thereby completed registration of the political parties currently existing in the country.

The Green Party, as is stated in its program, is for the creation of a humane and democratic Mongolian state, and is campaigning for a real guarantee of citizens' rights to an ecologically clean environment and for making ecology policy an inalienable part of overall state policy.

The party has 820 members and is chaired by (Davaagiyn Basanjorj) a 30-year old polytechnic lecturer. He has stated that the party will stand on its own as an independent force in the 29 July elections to the hural of people's deputies.

## TAIWAN

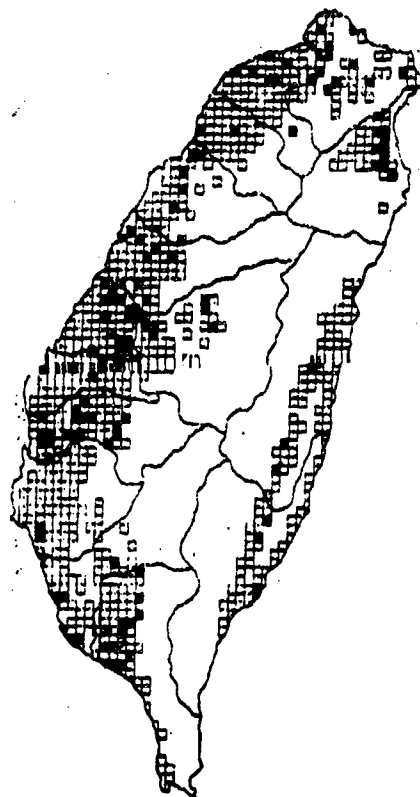
### Taiwan Farmland Increasingly Polluted

90P30034A

[Editorial Report] An article in the 21 Mar 90 Chinese-language Beijing RENMIN RIBAO OVERSEAS EDITION reports on page 5 that, according to Taiwan press

reports, one million hectares of Taiwan's farmland are suffering from steadily encroaching industrial pollution. If pollution is not effectively controlled, the article states, in 20 years Taiwan's agricultural land will be unfit for cultivation. Taiwan's Environmental Protection Office will soon complete a four-year survey of the heavy metal content of the island's soil; results thus far show that 47,000 hectares of agricultural land are "seriously" polluted, with pollution on 1,200 hectares reaching "poisonous" levels. An environmental protection official estimates that the completed survey will show that 60,000 hectares are seriously polluted and 1,600 hectares have poisonous levels of pollution. In addition, five percent of the seriously polluted land (or approximately 3,000 hectares) could become poisonously polluted within one year. Land which is now seriously polluted will be designated as soil pollution watch areas by the Environmental Protection Office. The office will investigate the causes for the poisonous levels of pollution and will survey crop pollution in coordination with agricultural administration units.

In this map, black squares denote areas with "poisonous" levels of pollution. White squares denote areas with "serious" pollution. Five percent of these white squares will turn black this year.



## INTRABLOC

### **Bulgarian Group Threatens Protests Against Romanian Chemical Plant**

*AU0106091090 Bucharest Domestic Service  
in Romanian 0800 GMT 1 Jun 90*

[Text] The ecology movement Ecoglasnost has asked the Sofia government authorities to contact the Romanian Government in connection with stopping the chlorine production at the Giurgiu Chemical Plant. If this is not done, Petur Slabakov, the president of the Ecoglasnost movement, will call on Bulgarian citizens to form human chains and hold protest rallies.

According to BTA, the earthquakes on 30 and 31 May triggered panic among the population of Ruse, a city lying across the Danube, who feared that the plant's chlorine warehouses might have been destroyed by the earthquake, thus causing an environmental disaster. After the two earth tremors, the content of chlorine ions in Ruse was found to exceed acceptable levels. Yesterday, the people of Ruse organized a protest rally asking for an end to pollution.

### **Bulgarian, Romanian Activists Discuss Giurgiu Chemical Works**

*AU0106190390 Sofia BTA in English  
1642 GMT 1 Jun 90*

[Text] Ruse, June 1 (BTA)—A delegation of Ecoglasnost (Ruse, Bulgaria) visited Giurgiu (Romania) where they had a meeting with the mayor of the town and with the leadership of the chemical works there. The reason for the visit was the gassing of Ruse with chlorine on May 31 and the threat the production of chlorine poses to the population in this area, especially after the latest earthquake.

At a meeting with representatives of the local Romanian ecological movements it was proposed to set up an international independent commission of experts who would analyze the production of the Giurgiu Chemical Works and come out with a statement. The delegation of the Ruse branch of Ecoglasnost received the support of their Romanian colleagues for initiating civic action if the two countries' governments do not establish contacts for the settlement of this problem by June 5.

The delegation handed over a declaration of the Ecoglasnost Independent Society forwarded to the presidents and the Governments of Bulgaria and Romania in connection with the pollution of Ruse.

### **Bulgarians Demonstrate Against Romanian Chemical Plant**

*AU0306142490 Sofia Domestic Service in Bulgarian  
1300 GMT 3 Jun 90*

[Text] In response to an appeal issued by Ecoglasnost on 3 June, several thousand Ruse citizens took part in a

living chain in protest against the continuing chlorine emission of the Giurgiu chemical plant.

With dozens of posters, banners, and exclamations which read "Stop poisoning the city!" "Life for Ruse!" "Dismantle the plant and the system!" "We want healthy children!" and "No to chlorine!", the citizens of Ruse again demonstrated their vitally important demands. Ecoglasnost's declaration again was read. It calls upon the president and the government to immediately adopt measures and meet the Romanian leaders, in order to quickly resolve the problems of Giurgiu and Ruse. Otherwise, on 8 June Ecoglasnost will declare a state of civic disobedience, and will undertake joint steps together with the citizens of Giurgiu.

### **Bulgarian, Romanian Ecology Activists Meet on Chemical Plant Issue**

*AU0506203090 Sofia Domestic Service in Bulgarian  
1730 GMT 5 Jun 90*

[Text] On the occasion of the International Environment Protection Day on 5 June in Ruse a meeting took place between representatives of the independent Ecoglasnost Association and the Romanian ecological movement. The public figures from the two countries noted with alarm that the chemical pollution of the air in the area of Ruse and Giurgiu continues.

The representatives of the two ecological movements agreed to cooperate and conduct joint activities in the struggle against the continuing threat to the two neighboring Danube cities. In this context they signed an appeal in which they propose to establish an independent international experts' commission, which will use modern equipment to monitor the ecological situation in this region.

The two ecological movements called upon the citizens of Ruse and Giurgiu to form a living chain on 8 June under the slogan; "Let Us Struggle Together Against the Chemical Threat!" The chain should merge symbolically at the bridge over the Danube.

### **Bulgarian Government Adopts 'Urgent Measures' on Ruse Pollution**

*AU0606182190 Sofia Domestic Service in Bulgarian  
1300 GMT 6 Jun 90*

[Text] The Council of Ministers has released the following announcement:

In connection with the continuing air pollution in Ruse, caused by gas discharges of the chemical plants in Giurgiu, the Government has adopted the following urgent measures:

The Romanian charge d'affaires in Sofia has been summoned to the Ministry of Foreign Affairs. Our country's concern was pointed out to him, and it was demanded that the Romanian authorities adopt the necessary steps in order to improve the ecological situation in the region.

Andrey Lukanov, chairman of the Council of Ministers, instructed the Bulgarian ambassador to Bucharest to convey a verbal message to Petre Roman, Romanian premier. The message appeals to the Romanian Government to adopt urgent measures and stop the gas discharges. It was proposed to accelerate work on preparing a Danube state ecological convention which will protect the population from all environmental hazards.

As a result of those contacts it was agreed to hold a meeting between delegations of the two countries. The meeting will take place tomorrow, 7 June, in Bucharest. The Bulgarian delegation will include representatives of scientific and ecological circles. The Government will immediately report the results of the meeting to our public.

### **Romanian-Bulgarian Joint Ecological Demonstration**

*AU0906214090 Sofia BTA in English 2003 GMT  
8 Jun 90*

["Chemical Emissions Protest"—BTA headline]

[Text] Ruse, June 8 (BTA)—Thousands of local people flocked in the afternoon today to the Danube Bridge Border Checkpoint on the initiative of the Ecoglasnost Independent Association and the Romanian Ecologist Movement Mer to form a human chain in protest against the ongoing chlorine emissions from the chemical works in Giurgiu, Romania.

The participants in the human chain marched on the bridge spanning the Danube, chanting "We Want Clean Air," "No More Chlorine," "Dismantle the Plant," "Mercy For the Kids," "Life For Ruse". In the middle of the bridge the Ruse protesters joined hands with a group of people from Giurgiu who declared their solidarity with their neighbors. The people of the two cities made it clear that they want the threat of chlorine emissions to be eliminated for ever and called on the two Governments to hear their alarming appeal.

### **Romanian, Bulgarian Ministers Discuss Ruse-Giurgiu Pollution**

*AU0906204690 Sofia Domestic Service in Bulgarian  
1730 GMT 9 Jun 90*

[Text] In Bucharest today Environment Minister Aleksandur Aleksandrov had a meeting with Simion Hancu, minister of water, forestry, and environment of Romania.

Both sides expressed concern over the ecological situation in the Ruse-Giurgiu region, particularly over the state of the installations at the second works of the Giurgiu Chemical Combine. They agreed to renew efforts in fulfilling the joint program for monitoring the quality of the environment, on the basis of a common methodology for work and a uniform program for measurements and analysis.

Agreement was reached that the first meeting of the joint commission, composed of representatives of the governments, ecological organizations, trade unions, and specialists in international law, should be held on 14 June in the town hall of Ruse. In the event this commission establishes on the basis of measurements and analyses that certain installations create a danger for the environment, the commission should propose measures, which may include shutting down the installations in question.

The Bulgarian side proposed that a technical examination of the Giurgiu Chemical Combine be carried out by a mixed group of experts, and that the epichlorohydrin plant of the second works, which was shut down on 7 June, should not be restarted until the expert examination had been completed.

The Romanian side avoided accepting direct responsibility for the recent gaseous pollution of Ruse with chlorine products, but voiced its willingness to cooperate in resolving the problems, after the sources of the pollution had been established by joint efforts.

The sides agreed to form a joint commission of experts on general issues relating to environmental protection in border regions. Matters relating to cooperation in protecting the environment will be comprehensively settled by an intergovernmental convention. In order to speed up the drafting of a convention, the two sides agreed that a meeting of experts should be held in Bucharest before the end of July.

We are extremely alarmed by the pollution of Ruse with chlorine products, which have again caused sufferings to people. At today's meeting a step forward was made in resolving the problems of protecting the environment in the Ruse-Giurgiu region, stated Minister Aleksandur Aleksandrov.

For his part, Romanian Minister Simion Hancu pointed out: There are many ecological problems in the border region. As far as Ruse and Giurgiu are concerned, measures have been taken to prevent pollution with chlorine products.

Georgi Avramov, secretary of Ecoglasnost, stated that the position of the Romanian side that it is no longer polluting Ruse and Giurgiu remains strange, to say the least. The problems must be solved by the joint efforts of the Bulgarian and Romanian public, Georgi Avramov stressed.

## **BULGARIA**

### **Government Adopts Environmental Protection Program**

*AU0806213890 Sofia BTA in English 1929 GMT  
8 Jun 90*

[Text] Sofia, June 8 (BTA)—The Government adopted a program of urgent measures to improve the condition of the environment in the country. The Dimitur Blagoev

Nonferrous Metal Works in Plovdiv will discontinue the production of lead by the end of 1991. The Georgi Damyanov Combined Works in Srednogie and the Asarel Medet Combined Works in Panagyurishte have been set pressing pollution-control targets, says an announcement of the Council of Ministers received in the BTA.

Urgent action is planned for the worst polluted parts of the country: Sofia, Pernik, Vratsa, Dimitrograd, Razlog, Devnya, Pleven, Ruse, Plovdiv, Asenovgrad, Burgas and Kurdzhali, and for the greatest polluters: the Polymet and Neftochim Companies in Burgas, the Pharmacia Company in Stanke Dimitrov, the power generation industry etc.

The program envisages a dramatic drop in the atmospheric emissions of dust, nitrogen oxides, lead, ammonia and other hazardous pollutants.

Measures are laid out for the clean up of the river valleys and for pollution control of the River Danube and of the Black Sea. New waste treatment plants will be built.

The program includes a range of targets to mitigate the hazardous effects of agricultural and forestry chemization, to end the heavy-metal contamination of farm produce and to secure organic raw materials for baby foods.

All measures in the program, assessed as most pressing for the coming five years, will take an investment of over 2,500 million leva, including nearly 500 million U.S. dollars. The environmental protection targets left out of the urgent measures will be included in the national program for environment protection and regeneration up to the year 2000.

### Need for Belene Nuclear Plant Questioned

AU3105184890 Sofia OTECHSTVEN FRONT  
in Bulgarian 30 May 90 p 2

[Article by Tsvetan Tsekov: "Can We Do Without the Belene Nuclear Electric Power Plant?"]

[Text] Many arguments, both pro and con, have been put forward regarding the construction of the Belene Nuclear Power Plant. It is evident that nuclear power engineering suffers from a number of technical imperfections, which, as is known, conceal dangers for ecosystems and man. In 1989, for example, 110 unscheduled shutdowns of generating units were recorded in Soviet nuclear power plants. Of these, 55 were caused by equipment failures and 55 by human error on the part of the staff. At the same time, the degree of loading of the reactors had to be reduced on 100 occasions.

Experts from the United States, the UK, Japan, and Finland, and representatives and consultants of the International Atomic Energy Agency (IAEA), after detailed investigations, have established a number of shortcomings in the operation of the Soviet nuclear power plants: the confusing and complex system of

control, lack of modern training aids for the personnel, poor provision for their operation on the part of the planning and design organizations, and outdated forms of operational documentation.

The assessment of the VVER-440 reactors by the IAEA commission is highly critical. At the moment, 14 reactors of this type are still in operation: four each in the USSR and Bulgaria, and the remainder in the GDR and Czechoslovakia. In the view of the experts, the 1,000-Megawatt reactors, generally speaking, meet world standards, but need a number of improvements to enable them to cope safely with unforeseeable emergency situations, to increase their fire safety, and to improve the reliability of the equipment. Among other things, the commissioning of the No. 5 reactor at Kozloduy was delayed by two years because of the hundreds (some say 3,000) of alterations found necessary during the installation work. The same story is being repeated with the No. 6 generating unit.

No rational solutions have been found for certain problems connected with nuclear power engineering, such as the transportation and storage of radioactive waste, which has a half-life of thousands of years. At present the radioactive waste from the Kozloduy Nuclear Plant is being transported to the Soviet Union. There is information that the Soviet Union has raised the question with Bulgaria that in the future the latter should pay thousands of dollars for each kilogram of waste! Yet here the problem concerns tens of tonnes.

Accordingly, the construction of the Belene Nuclear Plant, equipped with the controversial VVER-1000 reactors, will expose our country to heavy risks. In any case, nuclear electric power is much more expensive than energy produced by classical methods.

The question arises whether we have been overcome by the giganomania instilled by totalitarianism with regard to nuclear energy. The United States, with a population of 260 million, possesses 111 reactors, that is, one reactor for every 2,350,000 inhabitants. The Soviet Union has one reactor for every 7.5 million inhabitants. Bulgaria, with a population of less than 9 million, has 6 reactors, or one for every 1.5 million inhabitants, yet we want more! And this at a time when mankind is making a speedy reappraisal of its strategy regarding the utilization of nuclear energy.

In 10 years time Sweden will no longer produce nuclear-electric energy. Japan, the USSR, and many other countries have substantially limited their programs for building new nuclear power plants. The construction of the Crimean Nuclear Power plant was halted at an advanced stage; in March 1989 the Armenian Nuclear Power Plant was shut down; in October 1989 the second generating unit at the Beloyarsk Nuclear Power Station was closed down; and this year the No. 2 unit at the Novovoronezh Power Plant is going out of service. It has been announced that construction work is being halted on nuclear power plants in the Tatar Autonomous Soviet

Socialist Republic and near Yalta. As long ago as 1978, Austria completed a nuclear power plant near Zwentendorf to the commissioning stage, but the plant never came into operation, because of the insistence of the population, expressed in a special referendum. The opponents of the nuclear power plant won by only 30,000 votes, but their will was respected. Did anyone ever ask the Bulgarian people whether they wanted to have a nuclear energy industry?

According to official statistics, at the moment 30 percent of industrial enterprises, including most of the giant concerns, are loss-making. The critical state of the economy, as well as the requirements of the market mechanisms, demand that these enterprises, or at least a large proportion of them, should be shut down. They will, naturally, also disappear from the scene as the most insatiable consumers of electric energy.

There is a further alternative. Our present thermal power stations cause high pollution. They even discharge much greater quantities of radioactive particles than a nuclear reactor, if it is operating normally. However, other types of thermoelectric power plants also exist. To take another example from Austria, after the shutdown of the 750-Megawatt nuclear power plant at Zwentendorf, the 750-Megawatt Duerenrohr Thermoelectric Power Plant was constructed 30 km from Vienna, as the "last word" in thermal power engineering. Its novelty lies in its completely waste-free operating cycle. With the aid of Danish and Japanese technologies, the sulfur and nitrogen are extracted from the waste gases, and all waste products are processed for re-use. At the same time, the power plant is quieter than a moped. It is true that Austria obtains 70 percent of its electric energy from hydroelectric plants, but in any case the energy industry is responsible for only 4 percent of the atmospheric pollution, whereas in Bulgaria it causes 30 percent. The construction of such thermoelectric power plants is substantially cheaper than a reactor of the VVER type!

The above facts indicate, and even prove that we can do without the expensive and sometimes dangerous services of the possibly even more accident-prone nuclear power plant. If this problem is not settled by a referendum, then it should be resolved by the future Grand National Assembly.

### **Specialists Find No Evidence of Chernobyl-Related Morbidity**

*AU2905180690 Sofia DUMA in Bulgarian  
26 May 90 p 2*

[Report by Katya Karagyurova: "Data on the Health Consequences of Chernobyl Is Reassuring"]

[Text] No rises have been observed either in the number or relative frequency of cases of still births, perinatal mortality, deformations, and deaths following the accident in Chernobyl, as compared with the figures for the preceding four years. The variations show no significant causal or consequential connection with the disaster.

The above is indicated by data received from the whole of the country's health care system. These results bear out certain reports received from Italian specialists who made their observations in northern Italy. There was only a short-term rise in the number of abortions in the year following the accident, which may be attributed either to a genetic radiation effect or to rejection of a desired pregnancy for psychological reasons.

These were some of the conclusions on the health consequences of the Chernobyl accident which were discussed at a two-day working session organized by the Medical Academy. The statistical data was collected and processed in our most authoritative institutes—the Scientific Institute on Nuclear Medicine, Radiobiology, and Radiation Hygiene, the Institute for Midwifery and Gynecology, the Military Medical Academy, and others.

According to Prof. Asen Zhablenski, chairman of the Medical Academy, the data collected by various independent institutes shows no differences, but can be interpreted differently.

The cancer specialists consider that at this stage there are no grounds for believing that Chernobyl is affecting the frequency of appearance of malignant tumors. Like many other countries in the world, cancer in Bulgaria is showing a tendency to increase. The actual incidence of cancer illnesses rose from 251.09 per 100,000 persons in 1986 to 253.48 per 100,000 in 1987, a mean annual increase of 2.39. This variation may be caused by very many factors, which cannot be attributed only to the Chernobyl accident.

Following 1982 the indexes for cancer of the thyroid gland have stabilized. Bone cancers show a falling trend. Cases of breast cancer in women are increasing in Bulgaria more quickly than any other form. The highest level was reached in 1988, namely 55.41 per 100,000 women. During the last three years there has been no marked increase in lung cancer.

The carcinogenic risk for the Bulgarian population from the Chernobyl accident is determined to be 441 cases of fatal malignant diseases and 816 curable cases, distributed unevenly over the next 50 years. However, the forecasts made by our scientists concerning the medical and biological consequences and the early and late effects are not claimed to be anything more than approximate.

The figures relating to the trends in the development of cancers, leukemias, bone cancers, and cancer of the thyroid gland among different age groups are reassuring, at least for the moment. In the future it is possible that these will rise, even substantially, stated visiting Prof. Valery Berol, a World Health Organization expert working at the Oxford Cancer Research Institute.

## CZECHOSLOVAKIA

### Joint CSFR-USSR Meeting on Ecological Impact of Troop Pullout

LD0106162990 Prague Domestic Service in Czech  
1400 GMT 31 May 90

[Text] The Czechoslovak Press Agency (CTK) today published the results of deliberations of the joint Czechoslovak-Soviet Commission for Ecological Aspects of the Withdrawal of Soviet Troops from Czechoslovakia. It is quite necessary to carry out hydro-geological investigations in all localities used by the Soviet Army.

Participation of experienced Soviet experts is necessary in the investigation. The Czechoslovak side will welcome the participation of experts from the Soviet side in calculating the cost of the relevant investigation. The Soviet side will follow recommendations of the Czechoslovak side in the removal of contaminated soil to designated sites. The ecological issues are not part of the premises and technical handing-over protocols. The next session of the commission will be held on 28 June.

### Green Party Broadcasts Election Platform

LD3005130490

[Editorial Report] Prague Domestic Service in Czech at 0515 GMT on 30 May carries a five-minute election broadcast by the Green Party (Strana Zelenych), ballot no. 18.

The Green Party summarizes its campaign by saying that some people have been pointing out that the party's election campaign was "dull and too serious." Well we too could have been cracking jokes like other parties "but we did not want to insult your intelligence" the presenter says. According to opinion polls, "some people are afraid of alleged left-wing trends of the Greens. They are obviously taken aback by the fact that the Green Party has not been indulging in attacks against communists or against republicans. We have proceeded from our belief that communist rule has ended in our country forever. The hunt on the Czechoslovak Communist Party [CPCZ]—and we do not want to defend this party at all—leads to an interesting paradox. It turns communists into martyrs and helps them to keep their position." The Green Party believes "that the CPCZ bears the full responsibility for the desparate state of our environment and for the general fall in morals and education, not to mention the economic decline." Thus the party "distances itself from the CPCZ and does not intend to cooperate with them even in the future." The presenter concludes the program by outlining the main aims of the Green Party—improving the environment which in turn improves and extends peoples lives. "Vote the Greens, vote for life!"

### 75,000 Contaminated Dairy Cows To Be Slaughtered

AU1006123490

[Editorial Report] Prague RUDE PRAVO in Czech on 1 June on page 5 carries a 500-word Zdenek Hoffmann report on a news conference given by Jan Vodehnal, minister of agriculture and food of the Czech Republic, in Prague on 31 May. The report on the news conference, which was devoted to the presence of contaminants in the food chain, is published under the headline "75,000 Dairy Cows Will Be Slaughtered." The news conference is also the subject of a 1,000-word "vaf"-signed report in Prague ZEMEDELSKE NOVINY in Czech on 1 June, on pages 1 and 5.

The RUDE PRAVO report states that, of all the contaminants to be found in food, polychlorinated biphenyls (PCB's) are those which represent the "greatest danger" to human health. Their high concentration in milk will require the "liquidation of 75,000 dairy cows." The timetable for the "liquidation of the affected cattle has already been drawn up," according to Hoffmann. This measure will affect 67 agricultural enterprises in 47 districts producing 500,000 liters of milk a day. Many of these enterprises are said to be facing an "economic catastrophe." Although the Czech Republic Government has approved 190 million korunas in financial aid to these enterprises, "a minimum of at least 500 million would be needed" to offset the actual losses. Hoffmann's report also criticizes the fact that, although the harmfulness of PCB's was discovered as early as 1981, their deliveries to agricultural enterprises (mainly in the form of paints and varnishes) continued until 1984.

The ZEMEDELSKE NOVINY report provides some data on the testing of beef and milk for PCBs. These tests showed that 27 percent of tested beef samples, 20 percent of "raw milk" samples, and 5 percent of "treated milk" samples showed above-norm PCB levels. The report stresses that all milk containing PCB's is "excluded from human consumption."

The ZEMEDELSKE NOVINY report also provides data on the presence of other "harmful substances" in food. According to analyses carried out by inspection bodies last year, 19 percent of all potato samples, 18 percent of fresh vegetable samples, 4 percent of grain flour samples, and 5 percent of beef samples exceeded the set limit for cadmium content. The set limit of nitrates was exceeded in 15 percent of all tested samples of vegetables grown in hothouses.

### Power Plant Desulfurization Technology, Funding Explored

90WN0053A Prague

ZEMEDELSKENOVINYinCzech29 Apr 90 p 3

[Interview with Engineer J. Simanek by Jaroslava Smid; place and date not given: "Darned Expensive Experience: Increased Cost of Electricity Will Be Hard To Avoid"—first two paragraphs ZEMEDELSKE NOVINY introduction]

[Text] When a year ago we announced in our newspaper in the words of Docent Jiri Simanek that the desulfurization of the Tusimice Power Plant will never work, we were perhaps the first. Nevertheless, at that time we were still using as an argument the international agreement in which Czechoslovakia pledged to decrease emissions 30 percent by the year 1993. Today it is clear that even living up to that agreement was only a chimera.

And because many things in the power industry and environmental protection had to be reevaluated, we invited Docent Engineer J. Simanek from the Higher School of Chemical Engineering in Prague for another interview.

[Smid] Should there not be an investigation into who is personally responsible for the fact that in Tusimice Kcs 2 billion was thrown out the window, and in addition the public was kept under the illusion that beginning in May of last year the air quality in the Louny, Most, and Chomutov Districts would be improving considerably?

[Simanek] There should be. But you probably know how decisions were made at that time. There was no personal responsibility but collective irresponsibility. Opinions of specialized workplaces, including our department, were not the decisive ones. I would add, however, that the 2 billion were not wasted, because today we at least know that the Tusimice magnesite method is not suitable for desulfurization. At least not in the condition in which we received it.

[Smid] And what was the reason at that time to use just that technology?

[Simanek] Maybe only because it came from the Soviet Union. Otherwise it was calculated that both investment and operational costs are higher for magnesite scrubbing than for other methods.

[Smid] Are we at least clear today about which methods we will use in our republic for desulfurizing power plants?

[Simanek] Today the thinking of specialists, and I think also of those who will decide about the investment, is unequivocal: Use the method of wet calcareous scrubbing, which is being used around the world in more than 90 percent of cases.

[Smid] Has someone already calculated what the real cost of desulfurization here will be?

[Simanek] According to the experiences in the FRG, where similar units are located, the cost of desulfurizing a 30 megawatt bloc ranges between DM90-100 million. Here it is expected to be about Kcs 1 billion. Obviously we shall not be able to build all of them for korunas, we shall be forced to import about half of them from abroad for hard currency.

[Smid] Desulfurization, then, is quite expensive. How is that reflected in the price of electricity for a consumer in

the FRG, and how much more expensive would electricity have to become here in order to pay for the desulfurization units?

[Simanek] In the FRG today, cost of desulfurization represents about 15 percent of the price of electricity. Here it will be definitely more than 15 percent, because the price of electricity unfortunately does not correspond to the real cost of production. And we will have to first of all adjust the price of electric power to what its production actually costs us. If we also include the cost of desulfurization, then, if I say 40 to 50 percent, perhaps no one will suspect me of exaggerating the costs...

[Smid] Is the production of electricity more expensive in desulfurized power plants or in nuclear power plants?

[Simanek] That is being debated quite a lot at present. I venture to say that even now one installed kilowatt hour in a nuclear power plant is cheaper than in heat power plants with desulfurization. We must also realize, of course, that the service life of such desulfurization equipment is shorter than the life of a nuclear power plant. It does not pay to build desulfurization equipment in power plants which are nearing the end of their service life. And in the North Bohemian district there are more of them than those which can still be in operation for another 15 years without any more expenditures.

[Smid] During of our president's visit abroad there was talk about helping Czechoslovakia with the protection of the atmosphere. The FRG, Canada, France, the United States want to help...

[Simanek] You are right, but that referred more to monitoring systems. They, however, will not improve our environment. I compare the monitoring of the concentration of pollutants to this: Every day in the morning somebody empties a garbage can in front of your house, you come and carefully weigh the garbage and note down the results. That means, you know how much garbage the unknown person deposited, but would rather need to know who the unknown person was.

[Smid] Are you saying that nobody actually measures the individual polluters? Nobody here today can measure which smokestack and how much of those pollutants it spouts

[Simanek] You are absolutely correct. That is why in our department we are trying to prove that the most important thing is to monitor emissions and not merely the concentration of pollutants. Emissions come from individual smokestacks. That is where the monitoring systems should be, which would tell us how much that particular smokestack emits so that in the case of catastrophic pollution it could be decided in the center which source should cut down its output. Of course, the overall amount of emissions is known, because each power plant reports the average values of sulfuric fuel, but those are average values which can range from 0.75 percent to 2.5

percent of sulfur. What applies just for today, just at this hour, nobody will tell you. And that is what should be monitored.

[Smid] Since we did not succeed with Tusimice, which power plant will be desulfurized first and which ones will follow?

[Simanek] It has been already decided that the power plant Pocerady will be the first one to get desulfurization equipment, and that as soon as possible. The preliminary work has already started, and by 1995 desulfurization should be already in operation. Which ones will follow is difficult to say. First it must be ascertained what the operating conditions of wet calcareous scrubbing will be. We expect that the next one will be a second construction in Pocerady, followed by Prunerov and maybe Tisova. But those are just my ideas for the future. It will have to be decided by the government, or course.

## GERMAN DEMOCRATIC REPUBLIC

### Greifswald Nuclear Power Plant To Close

LD0106144790 East Berlin ADN International Service  
in German 1234 GMT 1 Jun 90

[Text] Berlin (ADN)—The last block of Greifswald nuclear power station still in service is to be shut down by December at the latest. This was announced today by Environment and Energy Minister Karl-Herrmann Steinberg at a joint news conference with Federal Environment Minister Klaus Toepfer in Berlin. The decision is based on a report by the German-German governmental commission set up in January to examine reactor blocks one to four. According to Steinberg, "basic safety deficits," as well as violations of plant rules were ascertained in this. While block four is being shut down immediately, block one will have to remain in service temporarily in order to maintain the provision of heating and "orderly processes of departure." However, extra safety precautions will be taken for this. Blocks two and three were taken out of service in February of this year on the basis of the results of the commission's interim report. [passage omitted]

### Statistics Provided on Ecological Damage to National Forest Reserves

90GE0096A Dresden SAECHSISCHE ZEITUNG  
in German 7 May 90 p 4

[Article by Wolf Dieter Liebschner: "If Industry Fails To Do Something, Europe's Forests Will Face an Even Quicker Death; Sulphur Dioxide Emissions Increasingly Threaten an Entire Ecosystem"]

[Text] Had there been attempts to export sand to the countries bordering the Sahara, they would have failed miserably. But this does not mean that absurd economic logic cannot produce results, however. The GDR—not

exactly a heavily forested country—succeeded nonetheless in exporting wood to the wood-producing country of Sweden for years. In the short term that filled the government's hard currency purse and made the forestry people's hair stand on end. This delicate policy made the conflicts that have now cropped up in regard to land use inevitable.

Veteran Chief Forest Superintendent Hans-Joachim Richter, a staff member of the Bezirk Council, knows that protecting the forests is not to be equated to dispensing with felling. On the one hand, every national economy needs wood as a raw material, and, after all, about 12,000 different items are manufactured from it in this country. On the other hand, timber cutting and cultivation directly serve to ensure the preservation of the timber stands. If a stand of pines of originally about 16,000 plants is allowed to grow unhindered, the trees would not be able to attain the prescribed age of about 110 years before they are used. But proven forest-management standards which were applied up until the end of the war, were, according to the plan, no longer valid. And with regret written on its face, year after year the government took more wood than the plan called for. The destructive lumbering of its own resources left its mark on the bezirks.

The bezirks had to produce 625,000 cubic meters of wood last year. "Clearly too much" comments Hans-Joachim Richter on that score. This year it looks better: 535,000 cubic meters are called for in the plan, which even in market economy terms will be significant for the forestry people. Nonetheless a huge figure, but Chief Forest Superintendent Richter puts it in perspective: "That is already approaching the ideal—it cannot be much less." For him, this is associated with the hope of returning to the principle of the sustained yield method, which means that in a certain forest area the same amount of timber is exploited year after year and the variety and age structure of the stand is preserved. That is not new, nor is the fact that the forest as a whole is not a site for revolutionary intervention. The foresters are still chewing hard on their midday meal.

To be sure, hope for a henceforth well-balanced stock management is by no means medicine for our sick forests, whose condition fully lives up to the poor European standard. According to a study by the International Institute for Applied Systems Analysis (IIASA) in Laxenburg (Austria), 79 percent of Europe's coniferous forests and 39 percent of its deciduous forests are threatened with destruction from sulphur deposits. In East and Central Europe 98 percent of the coniferous forests are damaged to varying degrees, and in the Nordic countries it is around 59 percent. The principal cause of the air pollution which extends over the continent is, accordingly, to be found in some East European countries that are incapable of solving the problem on their own. It is reported that the condition of the forests is critical, and it is worsening perceptibly.



Percentage of Damaged Forest Area in the GDR

	1988	Increase in 1989
Slight damage (warning stage): Damage level 1	30.6	7.3
Moderate and serious damage: Damage levels 2-4	13.0	3.4
Total damage: Damage levels 1-4	44.4	9.9

Ecological monitoring of the condition of the forests in the GDR showed an increase in forest damage from 31.7 percent (1987) to 54.3 percent (1989). At 61.5 percent, the pines are particularly afflicted, while the beeches at 29 percent with only slight damage can still be considered almost a picture of health. Dresden Bezirk ranks way up near the top in these macabre statistics. With an overall total of 62.1 percent of its timber stands damaged, this means fourth place in the country; and 23.4 percent of them have moderate to severe damage, which even gets us third place. The spruces are suffering the worst: Two out of three trees of this species are sick. These recently compiled Dresden facts are on the responsible minister's desk. In addition, new kinds of forest damage have been spreading from the FRG via Thuringia as far as Fichtelberg that also threaten our area: yellow stain, caused by nitrous gases, which results in reduced growth and declining yields and offers a suitable surface area for insects and fungi to attack.

Tree Variety Distribution in Bad Gottleuba Forest District (Percentage)

	1960	1986
Pine	12.2	7.0
Larch	2.5	8.4
Spruce	60.3	36.7
Oak	8.1	18.1
Beech	4.2	5.1
Scrub (sclerophyllous)	4.7	9.4
Light scrub (other)	7.7	14.9

To reduce the rate of loss, areas that have become bare are reforested with smoke-tolerant varieties as rapidly as possible: Beeches (they were planted on 223 hectares in the bezirk in 1989 and that is thus far a record), and oaks up to 600 meters elevation; additionally, larches, for example, and Murray pines—the latter are endangered by deer gnawing. "Magnificent growths have been produced." To this praise, rendered by FRG forestry people, must be added the fact that the expenditures for maintenance are almost indefensibly high. Whereas building 74 km of fencing was sufficient in 1985, last year it took as much as 154 km. Chief District Forest Supervisor Wolfgang Behnisch, chief of the Forestry Department at the Bezirk Council, expects new improvement as a result of the new forestry law which is being drafted for

Saxony. The structural subdivision of forestry operations into forest districts—a system that had been functioning stably until the early 1950's and that had its origins in the middle of the last century—ought to revive the fundamental concept regarding the forest stocks: land use and forest preservation as equal in importance to wood production.

As far as the general solution is concerned, the forestry people can only wait for a considerable reduction of SO<sub>2</sub> emissions by industry—which, to be sure, presupposes an abandonment of unrestricted energy production by brown coal. The reduction to 70 percent by 1993, which has been planned for the GDR thus far, will hardly have any detectable effect—as has been proven by research of the Academy of Sciences' Central Institute for Cybernetics and Information Processes. The scientists are calling for a 50-percent reduction—and in some localities even a total halt. It is predicted that if this does not happen in the next four to five years, the forest as an ecosystem will die every more rapidly.

#### Measures for Monitoring Air Pollution Detailed

90GE0083A East Berlin SCHUETZEN UND HELFEN in German No 2, Apr 90 pp 18-20

[Interview with meteorologist Klaus Schlegelmilch, department head in the Ministry for Conservation, Environmental Protection, and Water Management, by Wolfgang Dietrich; place and date not given: "Smog—Danger!"—first two paragraphs are SCHUETZEN UND HELFEN introduction]

[Text] What is smog? How does it come about? Who measures the air pollution? How can effects be limited? What areas of the GDR are particularly endangered? What measures are necessary to reduce annoying smog?

These and other questions are answered by diplomate meteorologist Klaus Schlegelmilch, department head in the Ministry for Conservation, Environmental Protection and Water Management.

[Dietrich] What does smog mean?

[Schlegelmilch] The word smog comes from the English language. It is a combination of the words smoke and fog. It is understood to mean a substantial and abnormal concentration of air pollutants in air layers near the ground because of extreme meteorological conditions. These include primarily: the degree of temperature increase with elevation—inversion; dependence upon wind direction; slight wind speeds or calm conditions; seasonal appearance, and duration of weather conditions in which there is little exchange of air masses; slight or no tendency toward precipitation; low temperatures near the ground; high relative humidity.

[Dietrich] The development of smog situations is linked with the simultaneous appearance of stable, extensive, and stagnant weather conditions and a correspondingly high emission of contaminants from sources of pollution

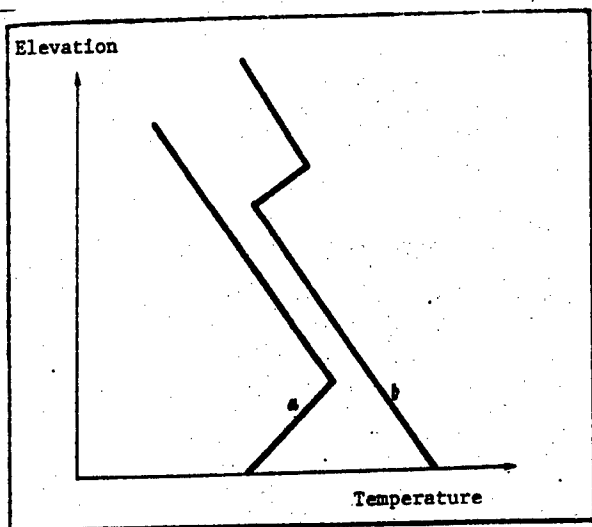


Figure 1. Vertical temperature pattern in the case of inversions (a: ground inversion; b: "free" inversion)

near the ground (emitters: stove heating, industrial facilities, motor vehicles, and others). Such situations—generally stagnant weather conditions in winter—can arise in central Europe especially when an inversion occurs under the influence of high-pressure or on the edge of a high-pressure region over East or southeast Europe. In contrast to the "normal case," there is then an increase in air temperature with elevation in the air layers near the ground. It arises

a) through the cooling of air layers near the ground as the result of nocturnal radiation (ground inversion) or

b) through the riding up of warmer air masses over layers of cold air near the ground ("free" inversions)

These temperature inversions result in so-called "blocking layers" that prevent an atmospheric exchange of the heavily contaminated air masses near the ground (Figure 2). The extent of smog situations is determined above all by low-lying "blocking layers" about 5-700 meters above the ground and their temporal duration. In addition to the very extensive blocking of vertical air movements, the horizontal exchange of air masses is also restricted in the generally weak air currents. In the case of lasting smog situations below "free" inversion layers, however, there can be extensive long-distance transport of air pollutants above all from large power plants and industrial centers.

[Dietrich] What do you understand under "long-distance transport"? The "exporting and importing" of smog?

[Schlegelmilch] Yes. Especially in the congestion area of our highlands—the Thuringian Basin, for example—this long-distance transport can overlap the pollutant load of local emitters and lead to an aggravation of the stress situation. The long-distance transport—across borders as well—can also represent an international problem and this is why the FRG, among others, is interested in a

joint smog early warning system with the GDR and other neighboring states. Supported by an accelerated development of the air pollution measuring network and the gradual expansion of the technical measurement of other air pollutants—in addition of sulfur dioxide ( $\text{SO}_2$ ), primarily suspended dust in the GDR—an operational data and information exchange is currently being prepared with the FRG and West Berlin, especially for smog situations.

#### Regions with the Greatest Loads (as of 1988)

With $\text{SO}_2$	Leipzig	189t/km <sup>2</sup>
	Berlin	166t/km <sup>2</sup>
	Cottbus	166t/km <sup>2</sup>
With dust	Berlin	74t/km <sup>2</sup>
	Cottbus	57t/km <sup>2</sup>
	Halle	54t/km <sup>2</sup>
Total Emission		
	1980	1988
$\text{SO}_2$	4.2 million tons	5.2 million tons
Dust	2.4 million tons	2.2 million tons
Nitric oxide	—	approximately 700 kt (408 kt from stationary sources and about 300 kt from traffic)

[Dietrich] Why does one hardly ever hear of a smog situation in summer?

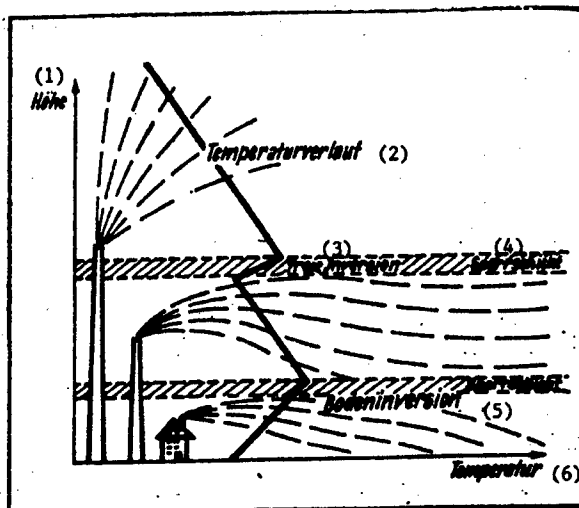


Figure 2. "Blocking layers" for the atmospheric exchange of air contaminants as the result of inversions  
Key:

1. Elevation
2. Temperature trend
3. Free inversion
4. Blocking layer
5. Ground inversion
6. Temperature

[Schlegelmilch] Smog weather situations are, as a rule, characterized by low air temperatures (less than 0 degrees Celsius to +5 degrees Celsius). The cold weather objectively leads to increased stove heating or to an increasing need for heat and electric power. The result is a generally increased emission of pollution (including sulfur dioxide, suspended dust, carbon monoxide, nitric oxide), especially from smokestacks with low dissipation heights. Industrial centers, large cities, and also smaller cities and settlements located in river lowlands or in valleys of our highlands consequently have a very high load in the air. In the case of a smog situation, the pollution emissions from stove heating (domestic fuel) can account for up to 70 percent of the load! An analysis of the smog situation since the winter of 1984-85 indicates that these extreme situations—depending very much on the general weather pattern—can occur two to eight times in the period of November to March. Such a situation may last two to five days and regionally up to 12 days in individual cases. In the winters of 1987-88 and 1988-89, there were only short and not very pronounced smog situations in the GDR on account of the weather.

[Dietrich] With what means and methods is a smog situation identified in time?

[Schlegelmilch] The task of early detection, process control and the introduction of measures to protect against any dangers in smog situations, including current and comprehensive information for the population, is the standard in most industrial countries today. Besides specific meteorological criteria, selected leading components of air pollution are technically measured and analyzed operationally. They are primarily the following pollutants: sulfur dioxide ( $\text{SO}_2$ ), suspended dust, nitric oxide, and carbon monoxide ( $\text{CO}$ ).

On the basis of the Fifth Implementing Regulation of the Land Culture Law [Landeskulturgesetz]—on keeping the air pure—dated 12 February 1987 (GESETZBLATT, Part I, No. 7, p. 51, dated 27 March 1987), Paragraph 16 "Protection Against Dangers in Extraordinary Immission Situations," supported by own experiences of recent years and taking into account to the extent possible the findings and criteria of smog regulations of other European industrial states, especially the FRG and West Berlin, the Fourth Implementing Provision of the Fifth Implementing Regulation of the Land Culture Law—on keeping the air pure—"smog regulation" was issued on 2 November 1989 (GESETZBLATT, Part I, No. 21, p. 239, dated 9 November 1989).

Conditioned by the still very unsatisfactory measuring equipment in the GDR for immission control (except for sulfur dioxide measuring techniques), the first smog regulation of the GDR was initially interpreted only for the pollution component sulfur dioxide, which, however, is very important for us. It has been registered and analyzed throughout the country as an average daily value since 1982. The gradual development and expansion of the measuring network for sulfur dioxide (it is

operated in the cities and settlements by the State Hygiene Inspectorate for the regions and over large areas by the Meteorological Service) began in 1982 with about 15 measuring sites and today includes about 100. Automatic air-hygiene sulfur dioxide measuring networks of the State Hygiene Inspectorate with a total of 48 measuring points are now in operation in the capital Berlin as well as in the regions Leipzig, Karl-Marx Stadt, Magdeburg, and Dresden. Halle Region followed at the beginning of this year. The respective data so ascertained are registered and analyzed by the GDR headquarters of the State Hygiene Inspectorate in Leipzig and the Central Weather Office of the Meteorological Service in Potsdam and the results are passed on to selected central state agencies and the regional councils for their information.

[Dietrich] What regions of the GDR are especially endangered?

[Schlegelmilch] Focal points are the northern foreland of the highlands (the area of Erfurt-Gera-Zwickau-Aue and Karl-Marx-Stadt) as well as the industrial centers Bitterfeld-Halle-Weissenfels and Leipzig-Borna. In these areas of the country, very much a function of the weather and especially the temperature patterns, one must expect smog situations on 10-70 or more calendar days a year. Taking into account the proposals of competent agencies in the territories, the above-mentioned analysis, the existing emitter structure, the orographic conditions (terrain) as well as the necessary density of the measuring network that is not yet available in all territories, the smog regulation resulted in a preliminary rough distribution into 20 regions with a potential danger of smog to be evaluated in a differentiated manner.

Because of the great influence of meteorological conditions on the development or termination of smog situations, not only the meteorological forecast but also the extensive registration of measured values, the current—international as well—exchange of measurement data and the routine daily calculation of border-crossing flows of pollutants are of great importance for the early detection and process control of smog situations. They are an essential basis for timely information on especially endangered groups of persons and for the well-founded introduction of temporary (also costly to the national economy) measures to reduce emissions.

[Dietrich] What possibilities do you see for protecting against the danger of smog situations?

[Schlegelmilch] Based on all available information, it is the task of the competent state agencies, especially the regional councils, in actuating or revoking the steps set forth in the smog regulation:

a) to secure current information, including recommended behavior, for the population, especially groups of persons already with health problems and endangered (older citizens and infants, among others);

b) to secure and control the actuation or revoking of the measures stipulated for the temporary reduction of emissions under the approved plant operational plans (there are now about 300 in the regions especially endangered by smog);

c) to exercise active influence on citizens, plants and installations so that they will make economical and efficient use of thermal and electric energy and be conscientious about temporarily giving up the use of private motor vehicles or certain enterprise vehicles (exceptions are important functions in supplying the population and the transport of perishable goods);

d) to implement measures for the temporary restriction of traffic in urban areas most stressed in the case of the actuation of Operational Step II for smog;

e) to carry out extraordinary control in the case of operators of polluting facilities with the objective of an orderly operation of the facilities and a high efficiency of existing environmental equipment (e.g., dedusting and desulfurization facilities).

When the smog levels are actuated, the operational staffs to be established under the councils or under the leadership of the council member for environmental protection should receive active support from the civil defense staffs on the basis of already developed, confirmed, and tested action documents.

[Dietrich] What solutions do you see in general to prevent the rise or the worsening of smog situations in the near future?

[Schlegelmilch] For reasons of space, the answer can certainly not be complete. At the present time, the appropriate technical prerequisites probably do not exist in the GDR to prevent the formation of smog in general. It is conceivable, however, that the air pollution can be reduced drastically through the realization of preventive measures. Effects of this nature were achieved, for example, through

—an accelerated development of the remote heat supply or through the increased use of gas for heating purposes, above all in inner-city areas as well as in settlements in valley locations, with the simultaneous application of efficient waste-gas purification procedures (dedusting, desulfurization...) in the central heating plants. Included therein are measures for the territorial rationalization of heating-supply tasks (construction and operation of community heating houses).

—Development and implementation of a new energy concept favorable to the environment, especially an improvement of the energy efficiency of employed fuels and energy sources, the reduction of energy-intensive processes and an effective control of low-sulfur fuels, especially in areas of potential smog danger because of orographic conditions;

—Actualization and reworking of the current operational plans for smog situations with the objective of achieving a greater effect on the immission situation through temporary measures to reduce emissions;

—Stabilization and further development of public transportation in inner cities using means of transportation causing little or no pollution, especially in areas threatened by smog;

—Promotion of the environmental awareness of every citizen in his activities in the labor process as well as the private area. The goal, among other things, must be to achieve an economical and efficient consumption/use of thermal and electric energy and other raw materials and products and to ensure an orderly operation of facilities emitting pollutants (among other things, annual inspection of the carburetor setting of motor vehicles). There must be no open burning of wastes, including of leaves in gardens, in smog situations.

## HUNGARY

### Green Party Holds Congress, Elects Leadership

LD0306172190 Budapest MTI in English  
1600 GMT 3 Jun 90

[Text] Budapest, June 3 (MTI)—The 3rd national congress of the Green Party of Hungary (GPH), held at Vidra-Tanya (Otter farmstead) near Szeghalom, eastern Hungary, this weekend, elected a new leadership.

The 51 delegates, representing about 700 members of Green organizations in 13 counties and nine Budapest districts, elected a seven-member board, and three co-chairmen: Karoly Szita, chief engineer for ecology in Somogy County, Ivan Gyulay, an ecologist and museologist from Miskolc, and Gyorgy Ilosvay, professor of the Szeged Teachers' Training College.

The congress was marked by a keen debate between the provincial and the Budapest Greens. Since a group called by many as the party aristocracy of Budapest has separated itself from the provinces, the provincial Greens are considering to establish independent local Green parties. The delegates suspended the membership of seven GPH leaders who were accused of having expropriated the party's leadership since the special party congress held in February this year.

## POLAND

### Officials Outline Plans for Katowice Area Polluting Industries

90EP0494Z Warsaw RZECZPOSPOLITA in Polish  
2 Mar 90 pp 1-2

[Article by Barbara Cieszevska: "To Start With, the Threat Is Extreme: A Lesson in Ecology"]

[Text] On the national list of 80 polluters, 24 are in the Katowice Voivodship which was visited by Minister Bronislaw Kaminski and the entire staff of vice-ministers and directors of the departments. One question had to be answered: what concrete steps have been taken by your establishment to decrease its stress on the environment?

This was an excellent lesson in ecology. Most of the time, the directors defended their positions; the minister and Governor Tadeusz Wnuk were asked for specifics.

Of three coking plants in Zabrze, two will be closed: one before April and the other at the end of the year. The director of the industrial coking group maintains that closing the plants will not settle the matter since sulfur coal will be burned in the furnaces, but the expertise of scientists is inexorable: coking plants are not suited to modernization. Only one has to be modernized to meet municipal needs. That is the ultimate conclusion.

Katowice steel mill is next on the list of polluters. A scandal on a European scale is the fact that the mill takes water from the drinking water intake. The governor has stated that Slask is threatened by a water shortage. He warns that the water-right license will not be renewed. It seems that in July, the mill will be withdrawing water illegally. It is poisoning Slask and Jura Krakowska and emits thousands of tons of dust. The State Environmental Protection Inspectorate confirmed the disastrous state of the electrofilters and their low effectiveness. When the mill was built, predictions were made that these filters would absorb 99 percent of the dust. It ended with the announcements. They attained 80 percent effectiveness. The extent of soil contamination is increasing; we still do not know what size the protected region should be. The administration is carrying on discussions with foreign firms for improving the functioning of the electrofilters. We will see what the result will be.

The argument with the nitrogen plants about the Bobrek carbide plant continues. The governor intends to close it in May 1990. The administration is requesting a three-year extension. It has put forth its arguments, and a decision has been made to bring in independent experts.

The Rybnik power station. Gentlemen, you are burying yourselves and the city ever deeper with your waste. A substantial part of this is underground already, but a dump with a three-year capacity is still needed. The matter will be considered, but you must expect opposition from the community. And what about the sulfur oxides with which the power station is poisoning the area? The director speaks of the need to desulfurize the coal, and the minister asks for specific plans. The power station is old, is the answer. It is being modernized gradually. The director anticipates fluid boilers in 10-20 years!

Laziska steel mill saved itself by providing information on the construction of four filters for 6 billion zlotys. This addition will be completed by the end of 1993. The director of the mill also announced officially that he

made a decision in keeping with the law that production will not be moved from Siechnice to Laziska since this would cause the environment in Katowice Voivodship to deteriorate.

We all know that in Krakow, the Vistula is brackish. This is due to three mines: Czeczot, Piast, and Ziemowit. The World Bank is already interested in this since enormous investments, in the order of 4 billion zlotys, will be required. A specific program is to be presented by 30 May. This problem does not at present concern Slask, but "we have settled Krakow, there are all indications that we will shortly settle Warsaw," the governor joked. "We must, therefore, act quickly."

In the zinc plant in Miasteczko Slaskie, one of the more serious polluters, one technical line has been put on hold, and another will be put on hold till the end of March. The director says that this will decrease dust fall out by 70 per cent and heavy metal fall out by 60-70 per cent. The director defends the rest of the plant since it is modern. This opinion is confirmed by the National Environmental Protection Inspectorate. A decision, however, must be made about the use of the area around the plant. This is contaminated by lead and cadmium. Concentrations of lead in the blood of children from Miasteczko Slaskie are several times higher than in children in Dunia.

Finally, Minister Kaminski was attacked by Deputy Barbara Blida, (Deputies Club of the Democratic Left). Slask has been exploited for 45 years, and now you are leaving us alone, that is not fair.

The minister did not exclude the flow of ecological funds from other regions to Slask, but he said definitely that harm that is done to the environment must be repaired by the perpetrators. That is a principle of economics. It is also a fact, however, that  $\frac{3}{4}$  of the soil in Katowice Voivodship is not suitable for use because it contains 100 times more heavy metals than the allowable limit. We have adequate maps of the complaints, but there is no money even for making people conscious of them, to say nothing about reclamation.

"We counted and continue to count on the energy of the minister; we believe that the people will help save Slask. There are similar examples in the world," say the research workers in the Institute for Environmental Protection.

"Specific programs for improvement will be prepared by the end of August," Minister Kaminski told a RZECZ-POSPOLITA journalist. "We would like enterprises to realize the gravity of the problem; that is the reason for today's meeting. It is something in the order of an ecological lecture. We have spoken for many years about improvement, today society no longer believes in declarations. We must restore credibility to our assurances. Obviously we will not save the environment on the ashes of the economy, and for that reason, we are beginning with the elimination of the worst threats. If we do not do this in an organized and rational fashion then society, in

a defense reaction motivated by the instinct of self-preservation, will force unrestrained closing of the plants on us. Therefore, instead of violence and total protest, we must act decisively and immediately.

## YUGOSLAVIA

### Krsko Nuclear Power Plant To Close by 1995

LD0606120290 Belgrade TANJUG in English  
1020 GMT 6 Jun 90

[Text] Belgrade, June 6 (TANJUG)—The new authorities in the Yugoslav Republics of Slovenia and Croatia have announced that they plan to close down the only nuclear power plant in the country, Krsko, by 1995, as the Belgrade daily POLITIKA writes today.

Although the new governments of the two republics, which jointly built the Krsko plant in Slovenia, seem to be on the verge of reaching an agreement, POLITIKA sets out that the Krsko partners could, nevertheless, shortly part on the issue. The closure of the Krsko nuclear plant would cost dearly both republics, especially Croatia, which has no possibilities of building plants which would provide the 2.3 billion kwhs of electricity annually supplied by the nuclear plant.

Whoever takes the decision to close down the Krsko plant will have to assume responsibility for the energy

situation in Croatia, Zarko Petrovic, adviser for power industry problems in Croatia, has stated to POLITIKA. He set out that Krsko was one of the most reliable facilities in the country and that it annually produced 160 million dollars worth of electricity.

Much discussion is yet to be held about the Krsko nuclear plant in the federal parliament, where a working group of the committee for the protection of the human environment continues to insist that plant is not safe.

POLITIKA asks how it will be possible to close down a plant, the loan for whose construction has not been yet paid, and it recalls that a 515-million-dollar foreign loan was used for the construction of Krsko and that the figure has in the meantime doubled because of delayed payments.

POLITIKA does not, however, rule out the possibility of Krsko coming to a halt even before the set date, that is, in two years' time when its nuclear waste dump will be filled.

The Krsko municipality, where the influence of the "Greens" is strong, will not permit that the existing waste dump be enlarged. Other parts of Slovenia themselves do not want to have a nuclear waste dump, as POLITIKA writes and recalls that nuclear plants must be shut down under international regulations if they have nowhere to dump the nuclear waste.

## ARGENTINA

### CNEA President Views Future of Atomic Energy

PY2305233090 Buenos Aires TELAM in Spanish  
1715 GMT 20 May 90

[Report by Marcela Goldini]

[Text] Buenos Aires, 20 May (TELAM) — Manuel Mondino, president of the National Atomic Energy Commission (CNEA), has indicated that the "first" 40 years find the organization immersed in a crisis, the same crisis that is being experienced by the country itself. He said, however, that the CNEA has a very well-trained labor force, a very high level of progress with respect to the maximum international level, and that it is willing to serve as the pillar that the country can use to get out of the situation that has been imposed on us.

In an interview with TELAM on the occasion of the anniversary of the organization and of National Atomic Energy Day, the scientist stated: "The CNEA is characterized by the fact that during the course of its history it has had to create everything that it has needed. Peron's perception must be added to the capability of the technicians that joined at the beginning to know how to prepare a development program for nuclear technology."

After highlighting the continuity of the CNEA's program despite Argentina's political and institutional ups and downs, Mondino proudly said: "I am the eighth president in 40 years," and he maintained that "the CNEA has marked stages in a technological development that is perhaps slightly detached from national reality."

Moreover, he admitted that "in Argentina nuclear energy has maintained a mystic, very secret, stance, and this has not permitted us to open the CNEA's doors to society, which is basically giving us life through the budget."

Asked about the role of nuclear-energy generation at the end of this century and the beginning of the next, Mondino believes that "in light of the conclusions of the September 1989 World Energy Congress in Canada, atomic energy will make a very large jump in comparison to the latter," [not further specified] and he stressed that currently, 25 percent of the population that inhabits the developed world uses 75 percent of all the energy consumed on the planet.

Regarding other forms of production, he recalled the depletion of traditional sources, the harsh threat of hydroelectric dams to ecological systems, and the high environmental contamination that is caused by conventional thermal plants (which produce acid rain). "Gas is the cleanest of all the fuels that we have at this time, but

it has its inconveniences and it is also not eternal. Thus, nuclear energy is the only alternative left to us," he said.

"As the development of nuclear energy continues to increase and there is a guarantee for humanity regarding the waste that is produced, this prediction will hold up. Many countries are using it, and with this solution the world will be able to live in peace. Even the ecologists are going to become aware that nuclear energy is a minor threat to the very large ecological system."

He also highlighted the efforts to "continue advances in technological aspects regarding greater reliability of materials that are used and regarding more stringent control of the minimum doses of radiation. Everything is constrictions, ever-increasing urgent conditions that are being adopted regarding nuclear energy to which technology is responding.

He acknowledged that "because of its belligerent potential, because of the harm it caused when first used, nuclear technology throughout the world has to pay, referring to the attacks on Hiroshima and Nagasaki, and he said that this is demonstrated "by the fact that world society is demanding much higher quality and control than are imposed on conventional industries."

"There are 600 reactors in service throughout the world and only two have failed, one with the loss of human lives. If this is evaluated, the probabilities of failure are one in 4 million hours of a reactor's functioning (166,666,666 days or 456,620 years), a very small probability."

Regarding Argentina's prospects in this sector, Mondino stressed that what is called the fuel cycle (the handling of uranium from its mining and production, its use, and the disposal of the waste) is now closed. We are independent in experimental reactors (radioisotopes), and although we are not independent in power reactors (electricity), the manufacture of fuel elements permits us technological autonomy.

"I believe that the CNEA can give the country more than it is giving today," Mondino said. He went on to note the CNEA's three priorities for this year. "The first is to unfreeze the financial situation to complete Atucha II. The second is to complete the heavy-water plant by the end of 1991 or the beginning of 1992, 93 percent of which has already been completed. The third is to complete the uranium-enriching plant in Pilcaniyeu."

Currently Atucha I and Embalse provide approximately 1,000 megawatts to the national grid, which represents 14 percent of the energy consumed and eight percent of the installed potential of the generating system. It also provides cobalt (which is produced by the Cordoba reactor) at promotional prices to approximately 1,000 health centers throughout the country, in addition to radioisotopes and other equipment for diagnostics and treatment.

According to the new schedule, Atucha II could begin operating in 1994. "The country cannot do without those 750 megawatts when we have a large part of the foreign financing already guaranteed," Mondino said, to highlight the fact that the "additional component" of reactivation of the plant will mean another 2,000 jobs. Moreover, the failure of the temporary union of the enterprises will oblige the treasury to make the effort to find funds to match the DM200 million that the Germans are providing, although there is also some Spanish aid.

He also referred to what he called the "small technological niches that we are occupying in the world" regarding reactors (the cases of Algeria and Peru) and fuel elements. In addition there are fairly well-channeled negotiations with Albania, Greece, Indonesia, Syria, and Iran. (An agreement was recently signed with Iran.)

Mondino admitted that Argentine society must discuss the nuclear question because it lacks information. We have never denied information to anyone. Even our harshest ecological enemies have been given all the time they needed by the organization's current authorities to debate, discuss, and visit the installations."

He stated that the Science and Technology and Energy and Fuels Committees of the Chamber of Deputies have displayed "great interest," but he clarified that within the community in general "there is a lot of noise at this time and topics for a profound debate are lacking; we are always ready to listen to the survivor, but the CNEA cannot just go out and impose" a discussion on a new nuclear program.

"In Argentina, the nuclear plan provided for six plants by the year 2000 but evidently that was a question of false priorities because the country was facing a stumbling block: Industries were closing down, and we were producing energy. Now we do have confidence that the productive revolution will take place, and obviously energy will be needed," he stated.

"I do not say that nuclear energy will be the only energy source in Argentina. It is probable that plants of the combined gas cycle could be used, but I want to see how much they cost and if the country finds itself in the position of having to give gas away to maintain political prices," he said.

He concluded by saying that "humanity's great crises demonstrate that progress has been helped by technological evolution. The best examples are postwar-FRG and Italy. Today capital and labor are not talked about as the basic element; instead capital, labor, science, and technology are discussed. Not to acknowledge this is like putting on a lead life jacket."

## BRAZIL

### S&T Secretary on Washington Climate Conference, National Policies

90SM0107Z Rio de Janeiro O GLOBO in Portuguese  
7 May 90 p 10

[Interview with Jose Goldemberg by Lucia Turibio and Mari-Angela Heredia; date and place not given]

[Text] Brasilia—Upon his return from Washington, where he took part in the inter-parliamentary meeting on climate changes, the national secretary of science and technology, Jose Goldemberg, was received as a hero by the Brazilian Government. His arguments, and those of the national secretary of environment, Jose Lutzenberger, caused Brazil to move from the defendant's seat to the position of accuser, in the international controversy over the environmental preservation of the planet.

In an interview with O GLOBO, Goldemberg did not conceal his enthusiasm over the results of the meeting; however, he also did not spare criticism of his traveling companion, Secretary Jose Lutzenberger, whom he claims to have delivered an inappropriate speech on that occasion. In addition to that episode, Goldemberg discloses other differences with his colleague in the Secretariat of Environment. They include the reforestation program, Floram, which prompted the first defection in President Fernando Collor's team: the departure of the president of IBAMA [Brazilian Institute of Environment], Werner Zulauf.

Goldemberg revealed that he would appoint Professor Eneas Salati as director of the Institute for Amazon Region Research (INPA), and that he would promote deep-seated changes in the institution. The secretary also noted that he intends to change the geopolitical concept of the Amazon Region's occupation.

[O GLOBO] Do you think that you succeeded at the Washington meeting in reversing the position of Brazil, which has been treated by the international community as the great villain of ecology?

[Goldemberg] I think so. Our effectiveness consisted of demolishing the American argument, which changed drastically between the opening and close of the meeting. It was all based on the idea that there are many scientific uncertainties and, hence, there is no justification for making large investments to prevent the greenhouse effect.

[O GLOBO] Was it there that you brought up the history of the star wars project, in which the U.S. invested fortunes without knowing what would happen in space?

[Goldemberg] Exactly. This was also a stroke of genius, because it was a diplomatic meeting, with everyone very serious and formally attired. And when I mentioned that, everyone began laughing. When I attacked in that way, the Americans themselves were pleased, considering the argument "a gem." And afterwards, in an interview on television, I used another argument: that



this business of learning directly, so as to take action later, is not correct. The Americans have been criticizing Brazil for allowing the devastation of the Amazon Region. We could have used the argument that the devastation does not have such serious consequences, that we need to study more, and that, meanwhile, we would continue the devastation if the problem is scientific information. I gave a reminder that Brazil emits five percent of all gases, and the U.S., 24 percent. Then the audience put the Americans in a disastrous position again.

[O GLOBO] And what is the solution for preventing climate changes caused by the greenhouse effect?

[Goldemberg] The composition of the atmosphere is changing, and we must avoid that. But it has been calculated that this would cost at least \$20 billion per year. And where will that money be obtained? Another solution would be to eliminate CFCs (chlorofluorocarbons). But something else must be used to replace them, because who could live without a refrigerator, for example? So, the idea is to establish an international tax on the burning of fossil fuels. For every kilo of carbon emitted into the atmosphere, you would pay a tax. My proposal is that the tax should not be very high, but the Americans and Japanese have attempted to obstruct that proposal as much as possible. But I hope that, by 1992, this idea will develop and be adopted here in Brazil during the UN's international meeting on the environment.

[O GLOBO] Who would manage the funds, and what is required to approve the proposal?

[Goldemberg] The World Bank or a new organization created especially for this purpose, because it is a great deal of money. The United States is responsible for 24 percent of the emissions, and hence would have a 24 percent participation in the fund. Japan would have seven percent; and Russia and China, another 20 percent. In other words, if the great powers failed to reach agreement, it would be difficult. The ones agreeing with the proposals are the European countries, especially the Scandinavians.

[O GLOBO] What are the possible means of reducing gas emissions into the atmosphere?

[Goldemberg] There are three things: first, eliminating the CFCs, replacing them with other products that are slightly more expensive, but do exist. Dupont is making new chlorine compounds, because CFC is an artificial product. The second is reforestation. There are 50 billion tons of coal stored in the Amazon forest, 10 times more than the entire world emits into the atmosphere every year. Therefore, the forest cannot be cut down.

[O GLOBO] What do you think of the Floram Program sponsored by Professor Aziz Ab Saber, and the ex-president of IBAMA, Werner Zulauf, who was dismissed by the secretary?

[Goldemberg] It is a very good, reliable program, but Professor Lutzenberger does not like it.

[O GLOBO] You have many disagreements with Professor Lutzenberger. Is this another one of them?

[Goldemberg] In this case, I am not the one; it is Professor Ab Saber. Ab Saber claims that Lutzenberger did not like the program, which he did not even read.

[O GLOBO] What effect has the antidevelopment position upheld by Secretary Lutzenberger had?

[Goldemberg] None. It was not the right place for making that type of proposal. It would be appropriate to make that type of proposal at an SBPC [Brazilian Society for the Advancement of Science] meeting.

[O GLOBO] In the leadership of the Amazon Region Zoning Program, do you think that Secretary Lutzenberger's position could delay the process?

[Goldemberg] The Amazon Region zoning is something concrete; it is not just talk. We are working on this together, and I think that we will succeed. The president is really determined. He assigned us together with the military, and I think that it will be accomplished. The best way of ensuring Brazil's control over the Amazon Region is to preserve the forest, including the Calha Norte border area. We intend to change the geopolitical mentality regarding occupation of the region.

[O GLOBO] What use do you intend to make of the National Institute for Amazon Region Research, INPA, which is linked to your secretariat?

[Goldemberg] I intend to change its profile, first by replacing the director. Schubart would leave and Eneas Salati, who was one of INPA's best directors, would return. The institute should not engage in biological research alone, but also in soil research. And a Department of Anthropology and Social Sciences should be created to study types of forest occupation that are not destructive. This would be a continuation of Chico Mendes' work, but expanding the area of activity for products such as medicinal extracts, on which there is only incidental information.

[O GLOBO] What is your assessment of the construction of hydroelectric power plants in the Amazon Basin?

[Goldemberg] Although they have been planned, they do not represent a significant environmental impact. I think that the hydroelectric power potential should be exploited to the maximum extent possible, also because it would prevent the use of other more harmful fuels.

### **Military Position Paper Defends Amazon Development**

*PY0106150490 Sao Paulo FOLHA DE SAO PAULO  
in Portuguese 29 May 90 p A-4*

[By Ricardo Arnt]

[Text] The War College (ESG) has admitted that the state "may resort to the extreme recourse of war" to overcome the pressure which has hindered or impeded the attainment of the "National Permanent Objectives" in the Amazon region. A document entitled "Structure of the National Power for the year 2001" considers that the war may be waged against smuggling, drug trafficking, and against non-government organizations (ONG's) [organizacoes nao-governamentais] for the protection of natives and of the environment.

In the five-page "Obstacles" section of the "Policies and Strategy for the Amazon Region" chapter, the ESG document mentions three times the possibility of waging a war against the ONG's. The document claims that such organizations are promoting the internationalization of the Amazon region, are delaying its development, are trying to strip Brazilians of their nationality, and are proposing the creation of indigenous and anthropological enclaves.

According to the ESG, the idea of "a self government within Indian areas" is a "permanent foreign intention to internationalize parts of the Amazon region. This begins with the Indian enclaves which are used by the ONG's as a spearhead in the discussions on Amazon issues, with the approval of the governments where their head offices are located, mainly in countries with ideologies in line with those of the United States, Europe, or Japan.

The document does not take into consideration the existence of Brazilian ONGs in the Amazon region. However, it does point out an effort "among the national media, part of the artistic and intellectual community, the church, and multinational companies to support the cause of the ONGs."

The ESG maintains that "preservationist activism" wants "to keep the Brazilian Amazon economic potential dormant," thus restricting the national freedom of action in the Amazon since "there is a preservationist theory that maintains almost total nonexploitation of resources."

According to the document, "there is a widespread international movement to denationalize the Brazilian" people and to internationalize the Amazon region "starting by creating areas in which their inhabitants must stop being controlled by the Brazilian Government, and become denationalized as Brazilian citizens, in an initial step to the general acceptance, with international support, of areas which are politically independent from Brazil."

As for the pressures for the "radical preservation of Indian culture," the document states that "by the means of applied anthropology, international interest is aimed at preservation rather than the permanent national objectives of national integration. Such pressures aim at imposing sanctions on Brazil and are supported by international law so as to make Brazil seem a criminal who does not want to preserve the vanishing Indian groups."

Army General Oswaldo Muniz Oliva, ESG commander and studies director, says that the document entitled "Structure of National Power for the Year 2001," which carries the subtitle "1990-2000: Vital Decade for a Modern and Democratic Brazil," has three volumes dedicated to "contributing to the progress of Brazilian society through the investigation and debate of democratic political and strategic options to solve national problems."

The work was coordinated by professor Jayme Magrassi de Sa with the participation of the ESG permanent staff members and students, including professor Marcos Coimbra, 62, secretary general of the presidency. The document is the result of 12 months of work. A preliminary version was distributed on 7 September 1989. The definite version carries the date 15 March 1990. The ESG told "its truth in writing and placed it at the disposal of the good-willed and democratic Brazilians."

When presenting the document, Gen. Oliva asserted that the ESG has "the humbleness to respect those who disagree with the position expressed in the document, a position established through dialogue by ESG members." The document expresses that it is aware that "its truth is not forcibly the only one. It is not an imposing, inflexible, or authoritarian position."

### **Environment Secretary Pressures Government on Demands**

*90SM0095A Sao Paulo O ESTADO DE SAO PAULO  
in Portuguese 19 May 90 p 11*

[Report by Elza Pires and Monica Maia]

[Text] Brasilia—In his first press conference since he took office, National Secretary of the Environment Jose Lutzenberger said yesterday that he is ready to resign his post if the Collor administration does not reexamine its position on certain environmental issues. Lutzenberger asserted that the Calha Norte project is no longer a threat to Brazil, but declared that what concerns him now is the use of charcoal as fuel by several steel plants in the Amazon area. "I am vehemently opposed to the use of charcoal, and my continued status as a part of this administration depends on a solution to that problem," he insisted. According to Lutzenberger, substituting Colombian anthracite for charcoal would be the most economic alternative for Brazil.

His high standing with President Collor does not seem to be in danger, however. On World Environment Day, 20

be celebrated on 5 June, Collor will visit the headquarters of Lutzenberger's department to announce the formation of a commission to prepare for a Second United Nations World Conference on the Environment, to be held in Brazil.

Although ill at ease in his encounter with the press—he shouted at some photographers to put down their cameras—Lutzenberger spoke enthusiastically of his recent 20-day trip to the United States. "We are no longer on the defensive; now we are a country that wants to save the Amazon," he emphasized, denying that he had backed anti-developmental positions. "I only tried to show that our economic thinking must be reexamined," he said.

In Lutzenberger's opinion, development agencies should not underwrite major projects in the Amazon region that would involve a threat to the region's ecosystem. "We cannot extend the BR-364 highway to the Pacific at this time, because we would be unable to prevent disasters," he argued. The secretary wants to use science and technology to promote the rational and ecological development of Brazil. "Small generating plants should be built, instead of mammoth hydroelectric plants," he argued. "If we want to satisfy energy needs, we will have to move in the direction of decentralized production," he added.

He likes the idea of converting the foreign debt into environmental projects. The secretary announced that he plans to increase the fundraising authority of the National Fund for the Environment so that it can receive foreign funds. Lutzenberger's position is the same as Collor's. "The countries of the first, second and third worlds must sit down together and begin a serious dialogue on how we can save the planet. Even so, the secretary expressed one reservation: "This plan for exchanging debt for preservation is only a minor detail in the much broader environmental policy that we must adopt from now on."

## CHILE

### President Creates National Environment Commission

*PY0606010190 Santiago Television Nacional de Chile Network in Spanish 1800 GMT 5 Jun 90*

[Text] Upon signing the decree creating the National Environment Commission [Comision Nacional del Medio Ambiente], President Patricio Aylwin has stated that the commitment to development and the principle of equality also necessitates the defense and protection of the environment.

Present at the ceremony were Minister of National Resources Luis Alvarado, Minister of Housing and Urban Affairs Alberto Etchegaray, and other people involved in environmental activities.

The president said in his speech that the new commission will first prepare a national policy for the defense of the environment. He added that this defense represents a national challenge that obliges all Chileans to work beyond their personal ideological positions.

## URUGUAY

### Housing, Environment Ministry Established

*PY0706000690 Montevideo EL DIA in Spanish 1 Jun 90 p 10*

[Summary] A new ministry was established yesterday in President Luis Alberto Lacalle's cabinet, the Ministry of Housing, Territorial Organization, and Environment [Ministerio de Vivienda, Ordenamiento Territorial y Medio Ambiente], which will be headed by Raul Lago. As soon as he was installed in his post, Lago appointed architect Walter Graino as his under secretary.

## INTERNATIONAL AFFAIRS

### Israel Seen as Beneficiary of Arab Water Policy Disputes

90WN0018A Cairo AL-SHA'B in Arabic 3 Apr 90 p 7

[Article by Ahmad Mustafa]

[Text] The declaration by the Egyptian minister of irrigation, in his response to questions by members of the People's Assembly, that Israel is not building dams on the Nile in Ethiopia, came at the same time that a "high level" Ethiopian delegation traveled to the United States of America, and then on to Israel, to explain the new directives of the Ethiopian leadership that are far removed from socialism and the Soviet Union. The Egyptian minister had stated in his responses last week that there are 23 American projects to build dams and change water courses in Ethiopia, but he gave reassurances that they are all under study. He reassured himself and his government that the Israeli water projects in Ethiopia will hurt only Somalia and not the Blue Nile.

It is well known that the Blue Nile comprises 85 percent of the water of the Nile river which reaches Egypt, and there are no legal agreements that regulate the utilization of the river water by the states situated along its course, or each state's share of river water, with the exception of the 1959 agreement between Egypt and the Sudan, which gives Egypt a share in the amount of 55.5 billion cubic meters of river water. Efforts to increase this share came to an end with the cessation of the Jonglei Canal because of the civil war in southern Sudan. The canal's purpose was to collect the water of the White Nile going to waste in Sudanese territory and make it flow into the course of the river which reaches Egypt.

Going back to Israel and the water, one cannot ignore the volume of material published by the foreign press, especially the American press, about the water problem in the Middle East, and its portrayal of pessimistic scenarios about the future of relations between the states, and its forecasting—hopefully of course—a coming war in the region over water resources. Of course any war would mean Israel and others: some of the Arabs or the Arabs all together. Perhaps that view and the analyses in all their pessimism explain what Israel is doing in Ethiopia on the waters of the Nile, following its failure to get the water of the lower Nile from Egypt to occupied Palestine.

The American studies that have been published recently on the water crisis in the Middle East (including the study by the Worldwatch Institute and the study by the Center for International and Strategic Studies) concentrate on Israel's problem with water. For there is no doubt that one of the goals of the Israeli enemy of invading Lebanon in 1982 was to get the water of the 'Awli and Litani rivers, besides the primary goal of course, which was to strike the Palestinian resistance in Lebanon. Moreover, Israel gets more than 40 percent of its fresh water from underground water in the West Bank, and it issues laws and military commands which

forbid the Palestinians from digging new wells in the West Bank, for fear that the amount of water that Israel gets would be reduced, and that subsequently causes the ruination of Palestinian agriculture in the occupied West Bank. Perhaps that is what moved the Israeli analyst Za'if Shif to say that settlement negotiations between Israel and the Arabs that do not include an agreement on water resources will not lead to peace, and will have left the seed of a future war.

There is also a water crisis between Israel and Jordan, for Israel's intensive use of the water of the upper Jordan river and the Sea of Galilee causes what remains of the water of the river to the south to be so extremely polluted that Jordan cannot make use of it. Moreover, Israel draws off more than 10 million cubic meters a year of the water of the Yarmuk river which forms the border between northern Jordan and southern Syria, even though Israel overlooks the Yarmuk from a narrow strip of land occupied in the 1967 war. If Israel continues these practices of its, Jordan will not be able to use the al-Wahdah dam on the Yarmuk, which it is supposed to be put into use in 1995.

In spite of all these Israeli violations and provocations against Arab water resources, there is no unified Arab stance. Even when Turkey cut off the water of Euphrates from Syria and Iraq last January, there was no Arab reaction worth mentioning. More importantly, there is not even a strategic Arab concept of the water resources and how to exploit them, as participants in the only Arab conference held on water complained, a conference which brought together experts from 11 Arab states in Amman in April of last year. But in spite of the absence of an Arab concept of the future of the resource as one of the most important sources of life and food in the large nation, and in spite of the Israel's provocations and violations against Arab water resources, and its arrival at the sources of the Nile in Ethiopia, all that with the blessing and remittance of America of course in the form of American aid to Israel, in spite of all that, the Egyptian minister reassured us last week that there is a supreme committee headed by the prime minister that is secretly following the matter. Perhaps openness was prohibited because of the committee's fear of the water from the holes in the government's "sieve."

## EGYPT

### Radiation Monitoring Network To Be Established

NC0906095490 Cairo MENA in Arabic 0822  
GMT 9 Jun 90

[Text] Cairo, 9 Jun (MENA)—Engineer Mahir Abazah, minister of electricity and energy, has stated that work is under way to construct a \$4 million nationwide network to monitor radiation in the environment.

Dr. Fawzi Hammad, director of the Egyptian Nuclear Energy Authority, has stated that the final specifications

of the network have been determined according to International Atomic Energy Authority [IAEA] standards.

In an exclusive interview with a MENA correspondent, Dr. Hammad said the project was put out to limited tender last month and that a decision will be made on the offers submitted within two months at the latest, so that the technical and executive measures required for the construction work may be taken.

Dr. Hammad pointed out that the project includes the establishment of 52 radiation monitoring stations along the northern and eastern borders, as well as other inland monitoring stations. The project aims to detect any abnormal increase in radiation as a result of a nuclear incident.

Dr. Hammad pointed out that Egypt is a member of the IAEA- supervised international early warning and radiation monitoring network and of the international meteorological organization. According to Dr. Hammad, this means that any nuclear incident across the borders should be reported through the international network.

Furthermore, Dr. Hammad asserted that the radiation content of Egyptian sea water, particularly in the eastern region, has been measured in the past few months. Tests conducted in the Egyptian Nuclear Energy Authority laboratory showed no abnormal radiation content in the region.

On Egyptian-Arab cooperation, Dr. Hammad pointed out that the People's Assembly approved Egypt's participation in the amended agreement for Arab cooperation in nuclear fields during its last meeting. The agreement had been prepared by the Arab Nuclear Energy Organization.

It is worth noting that the Arab Nuclear Energy Organization was set up upon an Egyptian proposal during the 1964 Alexandria summit to promote cooperation in the peaceful application of nuclear energy, particularly in medicine, agriculture, isotopes, and electricity generation.

## JORDAN

### Ministry Official on Water Resources, Rising Salt Content

JN0406221890 Amman AL-RA'Y in Arabic  
4 Jun 90 p 28

[By Khalil 'Abd-al-Salam in Amman]

[Text] The Ministry of Irrigation and Water Resources recently started implementing a strict program for distributing drinking water to all regions of the Kingdom.

Engineer Mu'tazz al-Bilbaysi, secretary general of the Irrigation and Water Resources Ministry, explained in a statement to AL-RA'Y that the step had been taken because water resources in the kingdom are not sufficient

to provide the needs of the citizens in the summer season, which usually sees increased water consumption.

Engineer al-Bilbaysi said that the Water Authority's program does not include the eastern Amman area, since there aren't enough reservoirs to provide the citizens with drinking water due to their financial circumstances. The program will apply to the rest of the regions in a way that will supply water for three days and cut it off for two, on average.

Engineer al-Bilbaysi said that the reason for the rise in the salt content in some water basins serving some regions was exhaustive pumping and excessive consumption of water basins, together with scarce rainfall during the last season. He pointed out that the authority had taken many measures to stop the depletion of water basins by banning the extraction of water in some areas.

With respect to stopping the pumping of water from Zayy to Amman, he said that very little water is pumped from the Zayy station in Dayr 'Alla because of the increased demand on water for agricultural reasons. This has been replaced by extracting subterranean water from the al-Suwaqah and al-Qatranah regions.

## SYRIA

### Government Investigates Safita Water Pollution

JN2905165190

[Editorial report] Damascus AL-THAWRAH on 23 May publishes on page eight a 2,500-word report on the results of a visit to the Governorate of Tartus by a government committee to investigate the problem of the pollution of potable water in the Safita area. The report states: "On 7 May, 1990, a government committee formed by the Council of Ministers early in May visited the Governorate of Tartus to investigate the problem of potable water in the Safita, pollution of the al-Shaghr [name as published] water, ways to completely remedy this problem, and the issue of distribution of the al-Abrash irrigation dam network project among construction companies."

The report quotes the director general of the water authority in Tartus as saying: "Tests conducted by the authority indicated on 19 February 1990 that the al-Shaghr water feeding several villages east of Safita and part of the city of Safita is polluted, and that the water was cut off and the governor and competent authorities informed." He also says that field visits resulted in several measures to overcome water shortage by allocating four water tanks to transport water to the area. The director of health in the area also says that due to water pollution resulting from bad sewage facilities in the Safita area, about 2,144 people became sick.

The report also quotes the deputy prime minister as saying: "technical services departments, municipalities, and local authorities should play a positive and effective role in implementing sewage and services projects

through popular work, because there is no financial capability at present to establish a treatment station in every town."

The reports adds that as a result of the committee's visit to the Safita area, it was decided that four new wells would be built in the area to overcome the water

shortage. The report adds that most springs in the area are not potable and that citizens continue to complain because the water tanks transporting water to the area have not solved the problem. The report then stresses the need for the central authority to remedy this issue as soon as possible, regardless of the cost.

**Commission Endorses Environmental Protection Bill***LD3005174190 Moscow TASS in English 1726 GMT 30 May 90*

[Text] Moscow May 30 TASS—The USSR Council of Ministers State Commission on Emergencies today considered and endorsed a bill on environmental protection.

The bill aims to preserve the country's reserves, to improve the state of the environment, and to enforce the law in this sphere.

The bill broadens the range of objects of nature. Along with land, its resources, soil, water, atmosphere, forest and wildlife, it also mentions flora in all its diversity, other components of natural ecological systems and the biosphere, the climate, and the earth's ozone layer.

It gives such definitions as "The zone of extraordinary ecological situation", "The zone of ecological disaster", etc.

The commission instructed the relevant ministries and government agencies to compile an inventory of toxic industrial waste this year and carry out measures in order to improve the current situation.

**Environmental Issues Arouse Concern in Polls***LD3105132290 Moscow World Service in Russian 0930 GMT 31 May 90*

[Text] The ecological movement in the Soviet Union has taken second place in the trust of the population, ceding first place only to the Church. This is the sensational result of research conducted by Soviet and U.S. sociologists in Moscow and the oblast. Participants were invited to express their attitude to various public and state structures, including the Communist Party of the Soviet Union, trade unions, and the government.

More than 96 percent of people polled are more worried about nature protection than rising crime, the problem of foodstuffs, the threat of AIDS and interethnic conflicts. The overwhelming majority of poll participants do not agree with environmental pollution for the sake of accelerated economic development in the country.

**Official Proposes 'Ecological Bank' for Environmental Funding***90WN0046A Moscow PRAVDA in Russian 27 Apr 90 Second Edition p 3*

[Article by N. Belyayev, deputy chairman of the USSR Bank for Housing and Municipal Services and Social Development: "A Common Bank Is the Guarantee of Success"]

[Text] The disappearance of the Aral, the Chernobyl tragedy, the ozone hole in the atmosphere—these are textbook phenomena of the same order, which the thoughtless and total use of violence against nature have

caused. And here we are now sounding the alarm: It is necessary to save the planet. Understanding—there are still no actions although there should be—is not enough. The whole question is—how? How can we restore destroyed forests, fertilize exhausted soil, and clean waters polluted by sewerage?

It is not only we—throughout the world, thousands of bright minds are struggling with this problem. In our country, the hopes for ecological well-being must evidently be connected with the work now being done on the draft for the State Program for Protecting the Environment and Rationally Using Natural Resources During the 13th Five-Year Plan and out to the Year 2005.

I do not know what this program will be but I do not doubt that it will require billions in capital investments. It would probably not be bad to ask financiers where these assets will come from and how they can be distributed and used efficiently.

Contemporary ecological programs are being primarily implemented in a discordant manner, according to departmental plans, and in the traditions of that very administrative distributive system that has led us to the edge of an ecological precipice. The fact that each ministry and each branch has its own and, as a rule, budget allocated assets for environmental protection measures is bad. The trouble lies in how they understand these measures and, consequently, how they make arrangements for the millions supplied for them—again, very often in a narrow departmental way. The essence and peculiarity of ecological tasks consist of the fact that their solution moves beyond the limits of departmental horizons, affects the interests of everyone without exception and requires the combining of efforts.

What is being proposed? Here is what. An ecological complex, which is common to the entire country and which includes the carrying out of scientific, production, management, and other functions, must assume the entire volume of work and complete responsibility for improving nature's health. It is necessary to begin with that without which no project can exist in a civilized world: with a powerful and dynamic financial base. We are talking about the establishment of a special Ecological Bank in our country as a state commercial institution.

Such a bank is needed because the strain on the state budget is unprecedented; ecological programs require more beneficial credit conditions in comparison with other programs; recoupment periods for expenditures (in view of the specific nature of their designation) will be significantly stretched out in time; there are many innovations connected with the increased degree of bank risk here (again, in view of their specific nature); and, finally, the country's credit and financial system still remains traditionally inflexible and unreceptive to what is new despite all the reorganizations of recent years.

Generally speaking, we are not thinking of anything new since such "ecobanks" have been established and are successfully operating in many countries, performing not only particularly financial operations but also the functions of combining and coordinating the actions of various ecological establishments and social movements that are its co-founders and collective members. These principles have already essentially been installed in the activity of the USSR Ecological Fund which unites around itself rather powerful public forces that are in favor of protecting the environment. A new step is now required—the restructuring of financial policy and the timely establishment of structures in the banking system which would be able to overcome departmentalism, the scattering of assets and their senseless and uncontrolled expenditure.

What is seen to be the area of activity of the USSR Ecological Bank? First of all, there is the concentrating of the financial resources of the country's ministries, departments and enterprises as well as those of interested foreign firms. Having such resources at its disposal, the bank could finance and provide credits for national and international ecological programs, beginning with the development stage.

The bank would also be capable of attracting enterprise and organization fund assets and the deposits of citizens on a paid basis (that is, with the payment of interest) and would have the right to distribute them within the framework of the single ecological complex of the country and international cooperation when implementing environmental protection measures.

It is evidently necessary to explain in detail here that no one, generally speaking, is encroaching upon the assets of the ministries and departments. By holding them in "ecobank" accounts, they will be fully used as they are meant to be, achieving as much as possible—in this case—not only and not so much an economic effect but especially a social one. Moreover, an opportunity will be opened up for the bank to use rather large assets for financing and providing credits to international and domestic government ecological programs. It will effectively conduct operations using the accounts of public ecological organizations, unions, funds, cooperatives, and other movement forms to protect the environment. The bank will be able to participate using its own resources in financially supporting long-range innovative projects. Finally, its assistance can be extremely effective in the activity of local soviets.

Evidently, it is now time to understand that, if we put the financing of environmental protection measures and the new state program on the old basis, an unsatisfactory result will be programmed in advance. Therefore, it is necessary to adopt the best that exists in world experience and world practice and to adapt it to our conditions as efficiently as possible.

### Scientist's Theory on Ozone Holes Cited

LD3005115990 Moscow TASS in English 1044 GMT  
30 May 90

[By TASS correspondent Viktor Elmakov]

[Text] Novosibirsk May 30 TASS—Ozone holes are nothing new in history, according to a Soviet scientist, who claims that the sun is capable of compensating the depletion of vital ozone layer, around the earth.

Professor Alexey Dmitryev links a powerful explosion in the basin of the Podkamennaya Tunguska river in 1908, supposedly caused by a meteorite, to the depletion of the ozone layer.

Scientists have found that from April 1908, the earth's ozone layer began to decrease rapidly in middle latitudes of the northern hemisphere.

A stratospheric anomaly, 800 to 1,000 kilometers wide encircled the globe, Dmitryev says.

This continued until June 30, 1908, when the Tungus catastrophe happened. A rapid restoration of the ozone layer followed, he says.

Dmitryev believes the depletion prompted the sun to discharge a "lump" of ozone-generating plasma to earth.

The "lump" neared earth near the Eastern-Siberian magnetic anomaly. The magnetic field, extending for 3,000 miles into space, acted like a antennae-trap.

The sun's reaction to the depletion of ozone is an element of solar-earth ties, according to Dmitryev.

The sun has an effective mechanism for fixing things that go wrong in its planetary system.

In 1908, one great ozone "hole" appeared and the threat to the biosphere was neutralized by a powerful, single intervention, he says.

Currently there are many ozone "holes". The sun, thus, intervenes by discharging small-sized luminous gas-plasma formations called energophobes to earth.

The sun will not allow ozone "hunger" on earth, Dmitryev says.

However, the more humanity depletes the ozone layer, the denser the flow of energophobes, discharged by the sun, will be. Mounting plasma attacks from the sun can drastically change weather conditions on earth, he believes.



## Moldavian Authorities Create 'Ecological Police' to Monitor Environment

### Plan Borrows From Austrian Model

90WN0058A Kishinev SOVETSKAYA MOLDAVIYA  
in Russian 18 Mar 90 p 4

[Article by G.I. Kostaki, militia colonel, member, Moldavian SSR Journalists' Union: "Ecology Police? Yes!"]

[Text] Perestroika processes and society's democratization cannot yield results without the necessary protection, rational utilization, and renewal of natural resources for the good of man, for his right to a healthy, full life. This is what the republic's social movement is demanding all the more vocally and persistently.

And it must be given its due: The 18th Moldavian CP Central Committee Plenum, have considered the issue "Of the political aspects of perestroika in the republic and the activity of the Moldavian CP under new conditions" in its 1 March 1990 resolution demanded radical policy renewal in the area of the ecology, and a restructuring of the program of nature utilization in accordance with all the specifics of the territory's economic potential.

G.I. Kostaki, candidate of jurisprudence, reflects upon certain paths to the realization of these tasks, on the legal basis of environmental protection relations, and on the role of the law enforcement organs in the area of the ecology. Georgiy Ignatyevich is known to republic readers through his works in the area of rights and freedoms of Soviet citizens, and the strengthening of socialist legality and law and order.

In this case, we shall speak of ensuring rights not in general terms, but of man's chief right—the right to life, for his existence is indivisible from nature, meaning that healthy nature is the basis for man's healthy life. From this stems our constitutional right, which, unfortunately, ecological specialists do not always cite. But after all, many statutes of our republic's constitution directly address the subject under consideration. In particular, articles such as 10, 12, 13, 18, 40, 71, 26, and others are directly aimed at regulating the ecological program in the Moldavian SSR.

Let us take Article 18, for example. It emphasizes that in the Moldavian SSR, in the interests of future generations, necessary measures are being taken for the protection and scientifically based, rational utilization of the earth and its mineral wealth, water resources, plant and animal kingdom, for conservation in water and air quality, for ensuring the renewal of natural riches, and improving man's environment. Such a constitutional basis is exceptionally important for a republic as densely populated as ours, in which ecological problems are being manifested particularly acutely.

In the document at the 18th Moldavian CP Central Committee Plenum, the negligent attitude toward the protection and utilization of the territory's natural resources underwent serious criticism; as a result of this

attitude, over the last 25 years, more than 12,000 hectares of field-protecting forest strips have been uprooted, more than 80 percent of the land has been plowed, and chemicals and land reclamation have been introduced intensively in all locations.

All of this has led to a state where almost 700,000 hectares, that is, one-third of the agricultural lands, the fertile soil layer, is subject to erosion. Because of the errors committed, the annual harvest shortfall in the republic is reaching R250 million today. The irrigation system using the waters of the Danube in southern Moldavia bears witness to the criminal attitude to the earth. As a result, enormous capital investment has been squandered, and in effect, thousands and thousands of people worked full strength for nothing.

Sociological research conducted by specialists of the Moldavian SSR Academy of Sciences also testified to the doom of the famous Moldavian chernozems, saturated with various chemical compounds, the disappearance of certain species of flora and fauna and the result of the soulless industrialization of agriculture, and the many other things that threaten man's very existence.

Thus, 93 percent of the residents of the city of Beltsy polled feel that the worsening health of the Beltsy residents is associated with the ecological troubles in the city. Only 13 percent of those polled assessed their health as being "good." For them, the most serious concern is caused by the status of the air, the quality of the drinking water, the sanitary condition of the streets, parks, squares, residential courtyards, territory of enterprises and the numerous warehouses, street, plant, and factory noise, litter and pollution (by waste water, industrial and food wastes) of standing water bodies and rivers, and the depletion of water sources. And to all of this should be added the chemicalization of agriculture, the destruction of forests and nature reserves, wild animals and birds, the threat to the environment from animal breeding complexes and their various waste collectors, etc.; it is not hard to imagine the dangers to which human health is being subjected.

Each such violation testifies to the anti-morality in the activity of individual organizations of enterprises and citizens. In light of this, attention is drawn to the weakness of the law enforcement function in the area of natural resources both on the part of the republic as a whole and of the corresponding state organs in the center and in the provinces. This is also evidenced by the data of the sociological studies by the Moldavian SSR Academy of Sciences which we already cited (interested parties may familiarize themselves with these in TRI-BUNA, No 5 1989).

Where is the way out? If we speak in general terms, then the utmost strengthening of the system of protecting the environment on the basis of introducing administrative-legal and economic levers, the intensification of the public's role in control over the realization of the ecological programs adopted and in resolving issues

associated with the placement of new production lines is necessary, increasing the level of ecological awareness of civic responsibility of the population. The population of the republic itself is calling the concrete steps. It demands first and foremost stiff sanctions for the violation of legislation on environmental protection, as well as the creation of new parks, squares, street greenery, and the most rapid possible solution for the problem of treatment facilities, etc.

Environmental protection tasks are given particular attention in the recently adopted Foundations of the legislation of the Union of SSRs and the union republics on land. Looking at articles 16, 40, and 53 of these Foundations is sufficient for understanding the state's deep concern. For example, Article 16, "The rights and responsibilities of farmers," directly prescribes the need to "utilize effectively the land granted to the land user, to apply environmental protection production technology, and to prevent the deterioration of the ecological situation in the territory as the result of his economic activity," as well as to implement renewal and increased fertility of soil, and the land productivity of the forest reserve."

The state organs are adopting the necessary measures for land preservation within the framework of general union and republic programs.

Responsibility for violation of the land legislation is regulated by Article 53 of these Foundations. Parties guilty of this bear civil, administrative, or criminal responsibility in accordance with the legislation of the Union of SSRs, union, and autonomous republics. Enterprises, institutions, organizations, and citizens are required to compensate damage caused by them as the result of the violation of the land legislation, and the deleterious effects on the land caused by their activity. As we see, the new legislation on the land gives the regulation of environmental protection relations particular significance. The Foundations of legislation on the land also specifies "the creation of new or fortification of existing state organs ensuring state control over the utilization and protection of the land on an interdepartmental basis." Such a presentation of the matter is entirely logical. Until the environmental protection system established starts working properly, it should not only be improved upon, but seriously reconstructed.

In connection with this, a special organ, the Administration of the Ecology Police, is now being created at the initiative of Minister V.N. Voronin. This initiative is actively supported by Moldavian SSR Goskompiroda Chairman I.V. Popovich.

The Administration of the Ecology Police is guided in its work by USSR and Moldavian SSR laws, the corresponding decisions of the MVD collegium, methodology recommendations, and the special instructions of the Moldavian SSR State Committee for Environmental Protection and Forestry.

On the whole, the administration being created is entrusted with the task of ensuring proper monitoring of strict observance of the Moldavian SSR Constitution, the laws and sub-legal acts of the republic organs aimed at supporting normal ecological conditions in the republic. More concretely, this is expressed in functional demonstrations, timely warnings, suppression, and revelation of ecological violations and crimes; in the increased efficacy of the fight against poaching, and the implementation of state monitoring of basin air pollution by automotive transportation. The administration's particular tasks will be: protecting natural resources from criminal encroachment; revealing incidents of illegal export by farms; warehousing and storage of pesticides, mineral fertilizers, toxic solid and liquid industrial wastes; the adoption of expedient measures for the cleaning up accidental discharges into the environment of hazardous substances.

It is not difficult to understand that the successful resolution of these and other tasks will make possible an improvement of the republic's ecological status.

The structure of the Administration of the Ecology Police is composed to encompass the republic's entire region in its influence. It will comprise highly qualified specialists. That is why we will need many young, energetic staffers.

We are frequently asked, are there analogous organs in other union republics? Are we copying something from someone? There is no such administration anywhere in our country. Even in world practice, such forms of environmental protection are still only being "felt out." Now, according to our data, a police subdivision for combatting ecological crimes and violations, the "Ecology police," has been created in only one country—in Austria.

Here is just some of the information we have about the police. Its chief task is the fight against a particular type of crime—harming nature and the environment, monitoring the work of industrial enterprises and institutions, and preventing violations of the law on environmental protection. It is interesting that the associates of this police have sat down in class to study biology, chemistry, and physics. The ecology police patrol not only parks, streets, and recreation sites, but the territory of industrial enterprises as well. Apparatus installed in the patrol car makes possible immediate air and water analyses at the scene. We would add that the new service in Austria is outfitted with the most up-to-date communications equipment. It has at its disposal specially equipped patrol vehicles prepared to get to the scene of the event at any moment, and to quickly conduct all the necessary soil, water, and air studies. As IZVESTIYA reported in September of last year, in the short period of their activity, these ecology police conducted 840 investigations, and in 345 instances, the case was handed over to the procuracy.

Both the MVD and Moldavian SSR Goskompriroda, in assigning the new subdivision exceptional significance, feel that it would be most expedient to study the experience of the Austrian ecology police in depth, for which two or three of our specialists should be sent there. We should also purchase in Austria several prepared, equipped specialized vehicles. True, all of this requires hard currency which we do not have at our disposal. But, as they say, "there are good people in the world." One of them is Moldavian SSR People's Deputy S.F. Fandofan, manager of the Center for Foreign Economic Activity of the Moldavian SSR Agro-industrial Union, who took upon himself the resolution of difficult organizational issues. The Moldavian SSR minister of internal affairs and Moldavian SSR Goskompriroda have already developed and confirmed a personnel structure and estimate for maintaining this administration, and the necessary documents and materials have been prepared for consideration by the Moldavian SSR Council of Ministers, according to which, positive conclusions have already been given by the Ministry of Finance and republic Gosplan.

#### Public Reaction to Plan

90WN0058B Kishinev SOVETSKAYA MOLDAVIYA  
in Russian 28 Mar 90 p 4

[Unattributed article: "Ecology Police? Yes!"]

[Text]The G.I. Kostaki article "Ecology Police? Yes!" published in our newspaper on 18 March of this year elicited the readers' broad interest; many of them sent their views on the problems touched upon in the article, and several constructive proposals were expressed.

In emphasizing that the problem of environmental protection is taking on a global character today, Doctor of Jurisprudence Yu.N. Todyka, senior reviewer of the department for issues of legislation and law and order of the Moldavian SSR Supreme Soviet Secretariat writes:

"Nature knows no boundaries and it pollution in one region cannot fail to leave traces in another. Every citizen has the right to a favorable environment, and in our view, this right should be fixed both the the new USSR Constitution and the Moldavian SSR Constitution. Incidentally, in November 1989, our republic introduced to the Fundamental Law a principally important statute: The soviets of people's deputies are obliged to ensure environmental protection and the rational utilization of natural resources. On the one hand, this statute reflects an intensification of the authority and responsibility of the soviets in the area of the ecology, and on the other, an understanding of how important it is to utilize the entire potential of people power for the resolution of one of the most urgent problems for the republic. It seems that this Moldavian SSR innovation will be accepted by general union legislation as well, and also by the constitutional legislation of other republics.

"The adoption by the Moldavian SSR Supreme Soviet of the Long-term comprehensive program for environmental protection and rational utilization of the natural resources of the Moldavian SSR until 2005, as well as the adoption of corresponding territorial programs by local soviets, testifies to the fact that the representative organs of power assign ever greater attention to the problem of the quality of the environment. It bears today not only an ecological, but a vividly expressed economic and political character, and is located at the center of the social movement in the republic.

"In our view, the establishment of an ecology police is a principally important step toward the creation of an integrated state mechanism for environmental protection in the republic. It is necessary to emphasize that the efforts of the MVD in the creation of this structural subdivision are proceeding in the vein of ensuring legality in the area of environmental protection, and the rights of the citizens of the republic to a favorable environment, to the creation of normal conditions for their life activity. After all, to a significant degree, the quality of the environment determines the quality of life itself.

"We feel that the close association of efforts of Goskompriroda and the ecology police of the Moldavian SSR MVD, and the activation of all elements of the republic political system in issues of environmental protection and rational utilization of nature will make it possible to more expediently resolve the urgent problems in this area. Along with this, a substantial renewal of the environmental protection legislation is required, an increase in the level of the ecological expertise of the entire population, especially that of the body of deputies and officials. Such work is already being conducted, but it should be intensified."

Definite attention was paid in G.I. Kostaki's article to the unfavorable ecological situation in a number of cities in the republic, particularly in Beltsy. And it is therefore completely natural that residents of this city (T. Rotaru, B. Burduzha, Ye. Nastas, and others) responded to it immediately. "Apparently all other measures for the protection of nature have been exhausted, since the MVD is taking this up," they write. It gladdens us that our republic is becoming the initiator. We are certain that the association of the efforts of the MVD, Moldavian SSR Goskompriroda, and the societies for the protection of nature and other public organizations, as well as the soviets of people's deputies, will finally ensure a favorable ecological environment not only in Beltsy, but in Rybnitsa, Kishinev, and other cities, and will ensure conditions for man's survival."

Several letters came from the village of Streshen. "I am in favor of the ecology police" was the title of one of them sent by T.P. Savchenko, department manager of the rayon newspaper MIRNYY TRUD.

"So many times Ya.I. Bakalu, a doctor of the sanitation and epidemiological station, and I have complained that

there is no militia man with us during our raids. You're checking, for example, the sanitary condition of a population point. You see mountains of garbage everywhere, illegal dumps. You establish the identity of the person doing these outrageous things. You rebuke him, form the complaint, send the document to the administrative commission, and there, the majority of complaints sit in file folders. And what good will come of it if they look at it? The maximum fine is 10 rubles. Seeing this impunity, many continue to mock nature all the more.

"It also happens that you find a person felling trees on the scene, and he comes at you with the ax. We recently found Olimpiada Muntyanu, a resident of the village of Gelauza, doing this: She was burning dry grass to prepare the soil for plowing. Next to this was a stand of acacias, which, incidentally, had been seriously thinned out at the hands of seekers of free firewood. Olimpiada Muntyanu intended to plow the ground in a landslip section. We rebuked and warned her, and she let loose with some uncensored verbal abuse. But if there had been a militia man there... I will not take it upon myself to make any sort of recommendations about the future ecology police, but it seems that one of its functions must be to apply harsher measures against violators of environmental protection laws. It is necessary to appeal to citizens' conscience, but it is also necessary to punish.

"The ecology police must work in close contact with the editorial boards of newspapers and magazines, radio and television, and with the public. And, as they say, it is necessary to put the reins into a strong hand right away. Enough of being liberal."

V.Ye. Pushkash, chairman of the Streshenskiy Rayon Committee for Environmental Protection and Forestry, reports that the G.I. Kostaki article was discussed in the committee, and that the committee "approves the measures undertaken by the MVD and Goskompriroda in the creation of ecological structure in the body of the republic law enforcement organs, and assumes that this will lead to the recovery of the outdoor environment, and places of human dwelling, to the improvement of health indices for the citizens of the Moldavian SSR."

And this is what Ye.I. Kovtun, deputy ispolkom chairman of the Streshen village soviet of people's deputies writes:

"The idea of creating in Moldavia an Administration of ecology police is important and a burning issue. The need for such a formation has long since become urgent, and we can only regret that so much time has been wasted, for the ecological situation has in many ways taken on a threatening nature today. And this issue is particularly topical for our republic, since under the conditions of high population density, it is very complicated to preserve land, water, and air suitable for habitation if strict control over the utilization of natural resources is not established. The least violation of legislation on environmental protection should be nipped in the bud.

"Everyone must fully share responsibility for protecting the environment. Unfortunately, many have a consumeristic attitude toward nature, pursuing egotistical, and frequently mercantile interests. The need for a specialized ecological service is obvious.

"Of course, the new Administration will have many difficulties, since this is a new cause. It seems that even more difficulties will arise in the rayon departments of the police, where it is harder with personnel, and the technology opportunities are extremely limited. I hope that the newly-elected people's deputies will give them active support and assistance in the provinces. After all, many of them included the resolution of ecological problems in their pre-election platforms. Nor should the ispolkoms of local soviets remain on the sidelines.

"If right now, immediately, without skimping in this important cause, we manage to form a strong police service, then we will win in the most precious thing, in people's health; we will acquire confidence in our children's tomorrow."

D.A. Mirskiy, senior scientific associate of the pedagogical NII [Scientific Research Institute] and candidate of pedagogical sciences, and honored Moldavian SSR schoolteacher, views the article in a different light, reporting that the newspaper's publication was discussed at the institute's scientific council from the position of scientific-teaching activity in the field of the ecology. D.A. Mirskiy writes that this activity "is being conducted over a long period, executed by scientists of the Moldavian SSR Academy of Sciences, associates of Moldavian SSR Goskompriroda, the Society for Environmental Protection and their branches in the provinces, schoolteachers, and VUZ instructors."

And further: "Many books and articles, scientific and popular-science, have been published in recent years; they cover the problems of the ecology in fair detail, as well as the issues of our republic's environmental protection associated with them. A careful analysis of school texts and programs indicates that these issues find their proper reflection in them."

In the concepts of teaching students in the general educational schools of Moldavia now being developed by the pedagogical NII of the Ministry of Public Education, and in many school subjects, great attention is paid to ecological issues. However, they do not cover the legal side of the problem concretely.

Is it possible that the ecological program does not have its legal defense? Yet G.I. Kostaki indicates that many articles in our republic's constitution are directly geared toward the regulation of the ecological program in the Moldavian SSR. The problem lies elsewhere—as the article's author notes, in the weakness of the "law enforcement function in the area of natural resources, both on the part of the republic as a whole, and of the corresponding organs in the center and in the provinces." "Thus the proposal for the creation of an Administration of ecology police, whose most important task

will be 'expeditious discovery, timely warnings, suppression, and revelation of ecological violations and crimes' is completely well founded and necessary.

"In fully approving of the recommendations of the article's author, candidate of jurisprudence Colonel G.I. Kostaki, it should be emphasized that the Administration of the Ecology Police being created can implement its program successfully only in the event that it has for this purpose not only the legal, but the necessary material-technical resources."

Note must be taken of one more troubled response from a reader. T.I. Kazakova, a resident of the city of Kishinev, a participant in the Great Patriotic War, and former military medic, writes us:

"We have become accustomed to the fact that the activity of the militia has been directed toward supporting public order on the streets, fighting hooliganism, etc., and suddenly, ecology police! And this is good. Everyone should know that if such a department takes up the cause, especially together with the committee for environmental protection, then order will finally be imposed, and the air we breathe and the water we drink will become cleaner, and the noise on the street that drives many to neurasthenia will be reduced.

But everyone must help this new Administration. I am already over 70, I haven't got long to live. Tell me, dear editors, where can I send a portion of my modest pension? I would do this with great pleasure. I also request that the honorarium for this notice be credited to environmental protection.

"It is a very good thing that the MVD, and the minister personally, have concerned themselves with people's health. God help them in this..."

As we see, the readers take close to their heart all the problems of the ecology that are now moving to the forefront; they are glad for every opportunity to improve the entire system of environmental protection.

### **Import, Use of Radioactive Syrian Mineral Fertilizers Investigated**

90WN0087A Moscow TRUD in Russian 17 May 90 p 2

[Article by V. Volovich, Oblast Nature Conservation Committee expert, Kalinin: "Radiation and Imports: How Mineral Fertilizers 'Contaminated' with Toxic Substances Ended Up in Our Country"]

[Text] One of the ancient regions of Kalinin, whose narrow side streets are built up with wooden houses, is covered with vegetation. Dandelions are scattered like thousands of small suns on the lawns in front of the homes. Blossoming apple trees have created rose-white tents.

Sweet idyll. And suddenly at the end of the most remote street—a picket line: Old women in kerchiefs and women with young children in their arms. One end of the

street's crosswalk was barricaded with a linen rope with colored rags tied onto it and the other end was piled high with rocks and roots among which was the white frame of an old stove or an old refrigerator. "We want to live" was written on it in red paint.

We managed to reach V. Grolovskiy, Oblast Nature Conservation Committee state inspector, by telephone: "Come here, we do not have any more strength. There is a fertilizer facility nearby. They have been showering us [with chemicals] for a long time, there is no justice."

The militia that had moved ahead of us attempted to reason with the enraged old women:

"Why was the road being dug across?"

"Well, you live here when we are eating, drinking, and breathing this chemical," said the picketers. "It is bad enough that we are being showered with chemicals and then yesterday they told us that they have some sort of radiation over there...."

The facility was about a stone's throw away. A totally rutted road covered with potholes led toward it and powerful dump trucks, loaded with something that looked like damp sand, were detouring around it.

They drove us around the territory for a long time and Chief Engineer V. Litvak explained that the Volga Facility is one of the largest in the Agropromkhim [Agricultural Chemical Production] Association. Approximately 4,500 rail car loads of fertilizer are obtained from it each year. It serves four rayons.

He spoke calmly and his imperturbability was disarming: "There is some sort of radiation there.... Probably rumors that have arisen, as they now say, due to radio-phobia. All the more so since Kalinin residents have their own nuclear power plant nearby."

They even treated us to tea during the peaceful conversation. And everything would have concluded quietly and peacefully if Party Organization Secretary A. Yermashov had not suddenly asked:

"Anyway, just what will we do about the radiation? Yesterday, they called us from the chemical plant and said: Uranium, radium, and something else has been detected in the Syrian fertilizer...."

We were stunned.

As we found out, Oblast Agropromkhiymiya leaders learned that radioactive substances—Uranium-238, Radium-226, and Thorium-232—had been detected in the phosphorous fertilizer that arrived from Syria and that has already been applied in the fields in Kaliningrad Oblast. Right then we also suddenly remembered: Really, Kalinin has been receiving this fertilizer for several years.

Messengers with packets of the mineral fertilizers were immediately sent to Moscow to the Central Agriculture

Agrochemical Service Institute. But Association Chairman V. Strazhevskiy refused to show us the results of the analyses and he also did not want to tell us the quantity of imported "vitamins" trucked to and spread on the fields. Although the agrochemists sent the analyses themselves to the Oblast Sanitary and Epidemiological Station the day before, the following orders were issued to both Deputy Chief Doctor Ye. Yashin and also later to Oblast Nature Conservation Committee Chairman V. Fomin: Ban the use of fertilizers until the degree of danger has been ascertained.

The content of the radioactive substances in the Kalinin shipment turned out to be the same as in the Kaliningrad shipment. But the situation, according to SES's [Sanitary and Epidemiological Station] conclusion, is worsened by the fact that there are special soils in the Upper Volga. First of all, fertilizer will remain in the surface layer of loam that does not let in humidity. And, secondly, this soil is poor in calcium and, in its absence, plants actively consume radioactive substances and accumulate them especially in root crops.

Moreover, an idea came to one of the Agrokhimiya workers: Could we not fulfill a portion of the consumer goods plan by packaging phosphorite and selling it to the population and maybe they can use it as a cleaning agent? As a test, they themselves distributed packets to homes and tested it—it was no good. And they discarded it.

But we will ask them a question: How could phosphorous fertilizer with a heightened content of radioactive nuclei end up in Kalinin, Ivanov, Kostroma, Leningrad, and other Oblasts and in the country in general? Really we already knew beforehand that Syrian fertilizers are one of the "dirtiest" in the world. Several years ago, Odessa residents literally rose up against the intention of the now defunct USSR Ministry of Fertilizers to locate a chemical works there to produce these fertilizers from Syrian raw materials.

Thus, what dictated the activities of Soyuzagrokhimeksport [Union Agrochemical Export] leaders? Did the Ministry "die" and the contracts remained [in force]? Or were new contracts concluded? And who thought it was advantageous to import from abroad what we have in this country and furthermore without harmful admixtures?

Another question also arises? How is radiological monitoring and the radiological service set up in this country if scandalous cases of this nature time and again come to light in various regions?

Many people probably remember the monstrous story that occurred in Kramatorsk in Donetsk Oblast when an entire family died because radioactive wastes were walled up in one of the wall panels? From which quarry did they get the construction materials? What about these wastes and how did they end up there? And where will we find more—in which house?

"Contaminated" raw tea was discovered at the tea weighing factory in Irkutsk and closed dangerous wastes were found near the polytechnical institute. Or one more thing: Mining of uranium was conducted for a long period of time in the resort area near Pyatigorsk and Minsredmash [Ministry of Medium Machine Building] kept this a secret.

The situation in the Upper Volga Region is already tense: The latest irregular situation occurred at the local AES in January [1990]. Thank God, it occurred without consequences. But where is the guarantee for tomorrow? At the same time they are continuing to erect the plant's third and fourth power units despite residents' protests. Although, as the public committee of experts asserts, the first two should not have been located in the watershed of the Black and Baltic Sea basins, on karsts, or with a shortage of water that is required to cool the reactors.

Furthermore, events occurred with lightning speed in Kalinin as a result of the Syrian fertilizers. The first rumor was circulated at the end of last week and an emergency meeting took place at the Oblispolkom on Monday to which experts in the area of radiation and scientists from Moscow and Leningrad were summoned. The task: Determine how dangerous both the foreign "vitamins" in the fields and those that still remain at the facilities are and also inspect the soil where they have been applied in previous years and this year.

How dangerous? Just posing the question causes a civic protest: Why must we ask it, become fidgety, and fearfully wait for the answer? Why are we generally not relieved of the need to pose this frequent and not nearly rhetorical question? And finally, who will completely and definitely answer it? And who will answer for it?

#### Government Moves Toward Closing Chernobyl

PM0106103590 Moscow PRAVDA in Russian  
1 Jun 90 Second Edition p 3

[Report by correspondent M. Odinets: "Step Toward the Closure of the Chernobyl Nuclear Power Station"]

[Text] Kiev, 31 May—After representations by the [Ukrainian] republic's government, the USSR Council of Ministers has set up a commission to elaborate by 1 October this year a program of work to take the Chernobyl Nuclear Electric Power Station [AES] power units out of service. It is headed by Ukrainian Soviet Socialist Republic Council of Ministers Chairman V. Gladush.

The commission has been instructed to examine the solution of problems connected with ensuring the social protection and rights of Chernobyl AES workers, the nuclear and radiation safety of facilities in the station zone, and the burial of radioactive waste.

**FRG Firm To Decontaminate Chernobyl Metal***LD3005163290 Kiev International Service in English  
2300 GMT 29 May 90*

[Text] Close to 165,000 tonnes of radioactive metallic structures are scattered in the zone of the Chernobyl Nuclear Power Plant since the April of 1986, and the question is what shall be done with these big heaps of radioactive metal. The West German firm (Recytek) has a test plant for decontamination of five tonnes of metal per day. It has signed a contract by which this plant shall start working in the zone of the Chernobyl disaster at the end of this year. The new technology is based on electrolysis in an acid medium by which a thin film of radioactive metal surface is removed and precipitated, whereas the metal body becomes clean of radiation. In this way it will be possible to return the polluted metal from the Chernobyl zone to steel manufacturers. After treatment the radioactive film shall be packed in small containers 12 by 12 inches each. As the test plant is small, the Soviet and the German side have plans to build a larger plant within the Chernobyl plant zone. This project has good prospects, as some Western firms indicated their willingness to buy the treated scrap metal.

**Chernobyl-Related Secrecy Termed Injurious to Population***90UN1639A Kiev RADYANSKA UKRAYINA  
in Ukrainian 30 Mar 90 p 1*

[Article by Leonid Fedorovich Brovchenko: "Without a Placenta Life Comes to a Standstill"; first paragraph is RADYANSKA UKRAYINA introduction]

[Text] Leonid Fedorovich Brovchenko graduated in 1976 from the Kiev University imeni T.G. Shevchenko, Radiophysics Department. He worked as a Manufacturing Engineer at the "Arsenal" plant, served in the military, and then began working as a reporter at the KYIVSKA PRAVDA newspaper. Since 1986 he has been working at RADYANSKA UKRAYINA. He is now a Senior Reporter at the Economic Reform Department and a Deputy of the Radyanskyy rayon Council of People's Deputies in Kiev.

Ours is not a sweet life nowadays. Our society is in trouble - economic, ecological, spiritual and political trouble. Of course one cannot solve all problems in a short time. But let us remember the unbreakable rule of civilized people: when a trouble comes, one first of all rescues the defenseless and the helpless, the children. Who are we, what kind of moral are we professing by dooming them to severe suffering and slow death?

Today, in the northern Kiev and Zhitomir Oblasts there is a clear boundary between humanism on paper and real-life humanism. In Polesye Secondary School No 1 one can see blood stains next to ink blots in students' notebooks - children often have nasal bleeding. Sometimes school students turn pale and faint. It is normal in kindergartens there to launder children's shirts after

nasal bleeding. Almost seventy percent of kids have enlarged thyroids. A lot of them are sick with vegetatively-vascular dystrophy. Lead Radiology Engineer of the Lugin Sovkhoz Association S. Vasilyuk shared his pain with me: physicians at southern resorts where children of Lugin sovkhozs' workers rested in the summer noted unanimously that there were almost no practically healthy kids.

At a meeting of managers and professionals of the republic's agencies and organizations with workers of the Lugin Rayon, one of rayons in the "strict" radiation control zone, I listened with pain to the physicians' explanations of the children's condition - forced staying inside premises, hypodynamia, hypoxia, effects of overeating (it is scary to think of it: bleeding and fainting caused by overeating!), and radiophobia.

Did anybody in the audience believe them? I am sure nobody did. Moreover, I myself am sure that radiophobia is an allusion to simulation, which means it is an immoral and shameless challenge to millions of people, including 250,000 children who live in high radiation zones.

Why have the physicians been conducting such a quieting policy? Why did they not perform their direct duties - correct diagnostics for "Chernobylites"? Are they ignoramuses in their profession?

It has only now become clear that this was caused by the ill will and instructions of "competent" time-servers in science and politics. I for one understand that due to defense considerations the State must classify certain information. But I cannot comprehend for the life of me why there are such secrets in public health service. From whom is the truth concealed? From which enemy? From your own people? Nowadays even the republic's minister of health does not have information on the radiation situation at the sites of nuclear power plants managed by the Third Main Administration of the USSR Ministry of Health.

Only one thing shows through this curtain of mystery and secrecy - the administrative-bureaucratic system's indifference to people. This already happened in our history, when people were considered small screws that had no value. This is why Chernobyl stressed with special acuteness the need to dismantle the system as soon as possible.

The criminal classifying has inflicted immeasurably heavy damage on the population of 32 rayons in six oblasts of the Ukraine. So many of them have already paid and so many more will still pay with their health! But the country still does not know her "heroes", who understated by a factor of 20 the amount of radionuclides released into the atmosphere in that horrible spring of 1986. Everybody got away with impunity. The crimes against the people have been gotten away with... What kind of people are we anyway?



It is now very difficult to decontaminate radiation-contaminated areas. Had one immediately, hot on the scent of radionuclides fallout, taken off a layer of soil from contaminated spots, the problems would not have been that acute today. Medical scientists are recommending that inhabitants of the "strict" control zone do not go into fields, do not walk on meadows, do not drop in to forests, do not swim in rivers, do not pick berries or mushrooms, do not fish, do not use wood for heating, do not eat vegetables from their gardens and do not keep domestic cattle. Forget all of it. But how is one to live?!

But even if children observe this, will they grow up as full-fledged people? The thing is that under this scenario a child falls out of the natural habitation environment. The forest, the field, the meadow, the mushrooms, the berries, the river, the domestic cattle - all this is the mother's placenta that supports a normal life of the person. If a pregnant woman loses the placenta while the child for some reason stays in the mother's womb, the child's life amounts to minutes.

I do not want to be misunderstood by those who "programmed" relocation of children from the contaminated zone to take three years and longer. I know that this costs money, a lot of it. But one must not drag out children's relocation for three years. Future generations will not forgive us!

In relocation I simply appeal to look before one leaps. Have we not had enough hasty relocations from one contaminated place to another, from a cesium to a strontium spot? New roads, buildings, newly built villages that one has to abandon now stand as a silent reproach to our callousness, mismanagement and dumbness.

What part of their bodies were the magnates thinking with when making the decision to build Slavutich, a new town for the Chernobyl Power Plant personnel, in the very center of the most intensive radioactive spot in the Chernigov Oblast? True, now, according to Ukrgidromet's [Ukrainian SSR State Committee for Hydrometeorology and Environmental Control] official M. Duritskiy, with whom I had an occasion to fly in a helicopter over the 30-km zone and Slavutich (God, what a beautiful town!), the town itself is clean, more or less - during the construction the soil had been dug over again and again. But what about the surrounding forests?..

And again, the thought suggests itself: those who were making the decision to build Slavutich right in the vicinity of the Nedanchichi railroad station, did not care about people. The main thing was to report - and after that they did not care "whether or not the grass grows."

But grass does grow well in the radioactive contamination zone. Alas, it grows abnormally.

### Measures to Counteract Radioactive Contamination in Ukraine Ignored

90UN1940A Kiev PRAVDA UKRAINY in Russian  
12 May 90 p 1

[Article by S. Nedourov, Lybid NPO [Scientific Production Organization], leading scientific associate and assistant professor: "And Here We Find Negligence"]

[Text] I recently visited the now well-known villages of Poleskoye and Narodichi. I traveled there on temporary assignment from Ukrainian SSR Minlegprom [Ministry of Light Industry] in order to see for myself that required anti-radiation measures had been accomplished at two local sector enterprises—Poleskoye Garment and Narodichi Ribbon Factories. I think I need to describe what I saw there—it is instructive.

The Rayon GO [Geographic Society] chief of staff showed me a map with data on contaminated soil in the Poleskoye area. It is alarming. In many sectors, radioactive cesium contamination exceeds the maximum allowable levels by a factor of four or greater. And I did not find sufficiently detailed information about the radiation situation directly at the garment factory. I had to use the dosimeter that I had brought with me. Measurements showed that the radiation situation at the enterprise—it is located in the area of the village that is on the other side of the river—is much more favorable than, say, in the central portion of the village. Thus, the gamma radiation exposure dose rate on the grounds adjacent to the factory totals an average of 0.03-0.04 millireontgens per hour. Average radiation levels in the production shops and other work areas did not exceed 0.02 millireontgens per hour.

It is possible that precisely these low contamination readings have also given rise to a feeling of complacency among the factory's leadership. What else can explain its total disregard for radiation safety measures? Thus, they have not organized constant dosimetric monitoring of worker and employee exposure or contamination of work areas, raw materials, and other materials. They are ignoring public health regulations recommended by the Ukrainian SSR Ministry of Public Health. Workers are not completely provided with overalls and they do not even have gauze bandages. They do not conduct regular wet mopping of work areas. A thick layer of dust lies on window sills and I saw products without packaging leaning up against the windows "out in the open" in a number of places. During the inspection, it turned out that radioactive contamination was two times higher on these window sills than in the remaining areas of the room. The glass was broken in many windows and there were large cracks in the window frames. There is still one more detail. The rayon hospital can monitor internal exposure of people using a special imported instrument. However, the factory is not keeping track of individuals who have completed this examination.

The Narodichi Ribbon Factory visit did not make a better impression. There were also quite a few violations



of safety regulations and radiation protection requirements: A worthless ventilation system, malfunctioning entry doors, excessive dust in the ribbon shop area, and failure to provide workers with overalls, soap, and first aid kits....

It is possible that in Narodichi the factory leadership is pinning all of its hopes on the impending resettlement of workers and employees to other populated areas and therefore is not burdening itself with "unnecessary" difficulties. Of course, the Republic Government has decided to resettle the population. Moreover, nearly 700 apartments have been allocated in various cities of the Ukrainian SSR to relocate families with children up to 14 years old and families with pregnant women. A social commission has been established under the rayispolkom that is carrying out personal selection of individuals subject to relocation. However, no more than 15 people of 200 ribbon factory workers and employees meet the requirement for the next resettlement. The fact is that the majority of the enterprise's female workers live in the nearby village of Silets that is considered satisfactory from the standpoint of radiation and is not subject to evacuation. This means that if you want to preserve your health, master the required antiradiation measures. Alas, they are dismissing them. And, as it became clear, much of the population simply does not know.

While spending the evening on the streets of the village, I paid attention to the fact that the majority of private plots had been cultivated. Near the small bridge across the stream, I admired the work of an old woman who was diligently digging vegetable patches. I approached her. We talked. "Are you not afraid of the radiation?" I asked. "And why should I be afraid of it?" the woman responded, "They have been frightening us for four years and we have been cultivating our gardens and gathering our harvests. Potatoes grow well here and last year we dug up many of them: I laid in a stock for myself and still sold 600 rubles worth to the consumer cooperative." "And how did the consumer cooperative use the potatoes they bought from you?" "The potatoes are being sold in all other oblasts—in the North, in Karelia." But this did not surprise me. The woman complained that neither she nor her neighbors had yet acquired the knowledge required to decide what they could plant and what they could not or how to deal with the harvest.

On another plot, I became acquainted with Arkadiy Vasilyevich Svishchuk. He was working with his wife. To begin with, I requested his permission to make several readings. The dosimeter readings turned out to be comparatively low—0.03 millireontgens per hour. The conversation suddenly became lively. Arkadiy Vasilyevich and his neighbors stated that no one had checked their plots for radioactive contamination and, in any case, no information cards about this had been distributed to them as it should have been done. I walked over to one more plot—the radiation level turned out to be higher here during the measurement. The manure that they had used to richly fertilize the earth has not been eliminated as the cause of this.

This question involuntarily arises: Who and how must they determine the population's agricultural activity for cultivating the earth and utilizing agricultural products grown on personal plots under conditions of "strict radiation monitoring"? I also did not find an answer to this question. Obviously, local Soviets nevertheless need to seriously engage in this. Precisely they must organize comprehensive population information program that tells them about the specific traits of radioactive contamination, its nature, the nature of the impact on man, and also about people's rules of behavior in contaminated zones. This work also has not been organized in Poleskoye and Narodichi to this day.

And as for the leaders of enterprises and organizations, it seems like they are waiting until specialized civil defense formations or military units arrive and do everything for them instead of organizing and insuring the conduct of anti-radiation measures at their subdepartmental facilities and grounds which is their direct job responsibility.

### Ukrainian Nuclear Power Plant Picketed

AU0906131290 Paris AFP in English 0941 GMT  
9 Jun 90

[Text] Moscow, June 9 (AFP)—About 300 residents of Nikopol [spelling as received] have crossed a water reservoir on motorboats and ferries to picket the Ukrainian Zaporozhye [spelling as received] nuclear power plant which they want closed, INTERFAX, a semi-independent news agency reported here Saturday. The protest was organized by local deputies and Greenpeace activists, who want a special government commission to carry out health checks around the plant in the southern Ukraine, INTERFAX said.

### Belorussian Strikes Protest Ongoing Chernobyl Aftermath Exposure

90WN0046B Moscow POISK in Russian  
No 15, 14-20 Apr pp 4-5

[Article by Svetlana Savrasova: "Dosage"]

[Text] Opposition. This title of an article by journalist Svetlana Savrasova (POISK, No 17, 1989) has essentially become a rubric since we have been forced to return to it so often. The further the Chernobyl catastrophe moves away from us in time and the clearer its global scope becomes, the more clearly and acutely the requirement for a general opposition to the calamity appears. However, the calamity is not only the fact that a reactor "jerked" but that they at first tried to simply conceal it from the people, subsequently tried to "tone down" the effects, and then tried to calm those, whom the calamity affected, allegedly in the name of science....

What can true science place in opposition to these attempts? Its traditional weapon—competency and integrity. How can the public help science? With their new weapons—glasnost and citizen initiative. The opposition is not ended.

### Theory....

Having accumulated one and the same radiation dose over different periods of time, why is it possible to have such different effects? This classic question of radiobiology still remains unanswered. It is very difficult to work with small doses under laboratory conditions. Mice, rabbits and dogs are a too "short-lived" experimental material.... Meanwhile, life requires scientists to speak their say immediately—hundreds of thousands of people are today living on lands that have been contaminated by the Chernobyl radiation. What awaits them in the future?

Much is known about radiation's direct effects. Its mechanism is more or less understood. The absorption of ionizing radiation by a substance occurs through the interaction of this material with energy quanta. When a quantum makes a direct hit, an electron from the DNA of the cell's nucleus is knocked off. As a result, the cell dies or begins to circulate an abnormal descendent.

However, what happens if a molecule of water, which forms 70 percent of living tissue, is encountered on the quantum's path? The molecule is destroyed. So-called free radicals—extremely eagerly reacting "fragments" of the molecules—originate. In this case, one talks about the indirect effects of radiation infections. Of course, this is only one aspect of the problem of a living organism's existence under radiation conditions; however, it is more than enough for one to regard "small dosages" with all possible caution.

Let us imagine an individual in a house that is being subjected to an artillery shelling. There is a probability, which is different from zero, of a shell directly hitting the individual (the direct effect of radiation). The probability is much higher that the individual will perish or be severely injured by debris from the building (the indirect effect of radiation). The direct and indirect dangers are reduced when the intensity of the shelling is lowered. However, when the level of radiation is reduced, only radiation's direct effect is reduced, its indirect grows!

The trouble is that the concentration of free radicals is increased when the irradiation power is raised on the cell; the more of them there are, the more frequently they will encounter and interact with each other, renewing the destroyed water molecules. When the intensity is reduced, the probability of radicals encountering each other is decreased and they "must" damage organic molecules. Damage to cell membranes involves the destruction of the immune system: The damaged wall will not protect the cell from the penetration of viruses. Today, one can say with confidence that small dosages of radiation cause many infectious diseases, which previously were never connected with radiation (influenza and pneumonia), as well as chronic illnesses of the heart and lungs. The paradox is that the more slowly the dosage is accumulated the greater can be the damage.

Statistically, this is confirmed by the recent work of scientists in the Belorussian scientific institute for

experts studying work capacity and organizing the labor of disabled persons which is located in the Belorussian SSR Ministry of Social Security. They conducted a neurological, ophthalmological and otolaryngological investigation of 352 males—rural machine operators in Gomel Oblast (the test group) and 212 of their colleagues from Minskiy Rayon (the control group) who ranged from 20 to 60 years old. Substantial differences were found in the health conditions of the people in these groups. Among the Narovlya people, the initial signs of vascular pathology were diagnosed sixfold more frequently. Vascular pathology of the eye retina was encountered eightfold more frequently than in the control group! Chronic conjunctivitis, cataracts, dimness of the cornea, dystrophy of the retina,... were found almost twofold more frequently.

This is why the scientific principles for regulating radiation's effect on an individual, which L. Buldakov, an academician in the USSR Academy of Medical Sciences, presented in his report during the first radio-biological congress, evoke doubts. You see, the scientist proceeds from the concept of the "absorbed dose of radiation"—the dose, and only the absorbed dose, is regarded by him as the main criteria. Unfortunately, he does not even discuss how this very dose is accumulated: over years? months? hours? Without taking this into consideration, the conclusions and forecasts of possible consequences from the Chernobyl accident and the entire "35-rem concept of a safe stay" on contaminated lands is not too reliable, to put it mildly.

Nevertheless, as Professor D. Beninson, the chairman of the International Commission on Radiation Protection who spent last year in Belorussia as an expert on evaluating the justification of the "35 rem for life" concept, has rightfully noted, a full fledged theory on the unprecedented Chernobyl catastrophe may appear only after approximately 100 years based on an analysis of factual data. Nothing more than this is needed for this: a life-long experiment with a population participation of 50,000 - 100,000 people! Is this price not too much for a theory?

Yevgeniy Petryayev, doctor of chemical sciences and department chief

Oleg Shadyro, doctor of chemical sciences and leading scientific associate in the radiation chemistry department of the Belorussian State University, Minsk

### ... And Practice

After Professor Yevgeniy Petrovayev, speaking on Belorussian television, gave his appraisal of the state of affairs in the zone of increased radiation, all the large industrial enterprises in the rayon center of Narovlya in Gomel Oblast went on strike.

After a week, approximately 200 inhabitants of the city of Narovlya—delegates of the striking collectives—went to Minsk (the gasoline for the four buses was pooled). In the capital, they were sent to the House of Political

Education where a meeting was held with A. Kamay, secretary of the Belorussian Communist Party Central Committee; Yu. Khusanov, first deputy chairman of the Belorussian SSR Council of Ministers; V. Goncharik, chairman of the Belorussian Trade Unions Council; A. Kichkylo, chairman of the Belorussian Communist Party Central Committee and Belorussian SSR Council of Ministers Commission To Eliminate the Consequences of the Accident at the Chernobyl Nuclear Power Station; and other responsible people. It was suggested to the Narovlya envoys that—"in order to avoid an uproar"—they select 12 representatives with whom a discussion of the strike committee's demands could be begun. The others waited and languished without anything to do. This permitted part-time journalists to conduct several interviews.

"What brought you to Minsk?"

Nadezhda Melnik, a dispatcher at the motor enterprise, replied to this question as follows:

"Despair. I have three children. The impression is that our government, instead of rescuing us from harm, is doing everything possible to keep people in the danger zone. Never has so much housing been constructed in Narovlya as now. Why? Should they not evacuate us? They recommend that the children not be allowed on the street and, at the same time, splendid children's playgrounds are being built on all courtyards. It has been forbidden to grow fruits and vegetables on our land but they are putting the counters of a new market on the square.... Why?! Who must attach us to this accursed place by any means? By what right are they deceiving us all of the time? For nine years, I had not dropped in on my polyclinic; however, I recently felt very poorly and went to the doctor. Imagine, she found in my chart... the results of analyses during the last three years. Naturally, all of the statements were normal. It is impossible to endure this blatant deceit any longer!"

Valeriy Zezyutko, a driver, said: "I also have children. Nine-year-old Sveta has pathological blood changes and 10-year-old Denis' thyroid gland is enlarged...."

"Once radiation monitors came to my 78-year-old mother's and took measurements in the garden: 'One can eat the fruit, little mother, but the bazaar is a no-no!' Here is another fact: They built a car wash for buses in Narovlya before the accident. They put up the walls and installed the drains and lights. This almost completed building remains idle. We, the drivers, wash the equipment manually at the motor depot using small hand-basins. For this procedure, after which our mouths burn, we receive 44 kopeks considering the highly praised 'double pay.' What is interesting is that wages have been doubled and the rates cut.... Everything—no matter what is done—goes not to the good but to the bad. For example, they evacuated the village of Karpovich; they transported them three kilometers to Konotop. They have now taken measurements in Konotop—it is also necessary to evacuate it. For example, they sent the

children to a Pioneer camp—many returned with neuroses: They had put them to bed in a separate bedroom, they fed them separately from the 'clean' children...."

"During the summer of last year, we were on strike for five days. It looks very much like this measure is the only way to attract the leadership's attention to our misfortune today. At that time, they persuaded us but that was the last time that we believed them. Not one of the summer promises has yet been fulfilled. You see, we did not come to beg but to demand the guaranteeing of an individual's main right—the right to life!"

The discussion of the strikers' demands dragged on. Towards evening the Narovlya delegation demanded that their representatives return to the hall and divulge the results of the discussions. A "Protocol Between the Representatives of the Work Collectives in the City of Narovlya and the Belorussian Communist Party Buro and Belorussian SSR Council of Ministers Commission to Eliminate the Consequences of the Accident at the Chernobyl Nuclear Power Station" was taken under consideration and discussed point by point. It proposed, for example, the immediate evacuation of families "that had children under 14 years old (as of 26 April 1986), pregnant women and persons whom it was recommended not live in the city of Narovlya because of medical reasons; the granting to the evacuated inhabitants of the right to special entrance into a housing construction cooperative; the halting of construction in the city of Narovlya and the rayon from 1 February 1990; and the directing of all investments toward the construction of housing for the immigrants; the determination of the required amount of international help in medical equipment and medicines and the determination of the procedure for importing them into the republic...."

The protocol was accepted point by point and undoubtedly would have been adopted as a whole if it were not for the last demand of the strikers—at first glance, the most inoffensive one—the demand for glasnost in adopting and implementing the protocol: to be given an opportunity to make this document public on television, publish it and speak on the "Narovlya Question" at a session of the Belorussian SSR Supreme Soviet which was to open the next day. Here, a new opposition began! What it was and what the reasons for it were can be judged from the remarks that are on my dictaphone:

"What do we need television for? It is not necessary to withdraw to the side!"

"Publication is not to your benefit! Others will want the same thing."

To the credit of the Narovlya people, they correctly evaluated everything. One of the delegates, V. Sivak, hit the nail on the head:

"You want to buy us with this protocol but we want the same thing done for Khoyniki and Bragin that was done for us."

The protocol was not adopted.

The Narovlya people picketed Government House the next morning.

They were not permitted inside. They carried the protocol out to them (without the "television and newspaper" point) which had been signed by the chairman of the Council of Ministers himself.

With this, they left.... Do not be afraid, Muskovites, they did not go to the capital. They went to Narovlya, home, "to accumulate additional rems," as one of the picketers said in farewell.

Svetlana Savrasova, Minsk

P.S. Recently, having read in ARGUMENTY I FAKTY a letter from Narovlya that construction is continuing there, I called the rayon. I learned that the letter was somewhat belated—all capital construction in Narovlyanskiy Rayon has been halted. As the local radio reported on 12 April, the assets which had been destined for this purpose have been transferred to a fund to help the Chernobyl people. Construction, however, continues in the neighboring rayons which "were not part of the protocol."

### **Poor Equipment Blamed for Nuclear Safety Problems**

*PM2105110390 Moscow PRAVDA in Russian  
18 May 90 Second Edition p 2*

[Interview with P. Ipatov, director of the Balakovo AES; and Yu. Vyshnevskiy, chief on-site inspector of the State Committee for the Supervision of Safe Working Practices in the Atomic Power Industry, by correspondent A. Vorotnikov, first two paragraphs are editorial introduction: "Shadow of Chernobyl Over the Volga"]

[Text] There has been an unscheduled shutdown of a unit at the Balakovo AES [nuclear electric power station]. Unfortunately, it could be called a routine event because such incidents are becoming a regular occurrence here. But people on the Volga refuse to accept this, they refuse to be the hostages of an unreliable nuclear power industry.

The PRAVDA editorial office has been receiving anxious phone calls and irate letters. Our correspondent A. Vorotnikov asked P. Ipatov, director of the Balakovskaya AES, and RSFSR [Russian Soviet Federated Socialist Republic] People's Deputy Yu. Vyshnevskiy, chief on-site inspector of the State Committee for the Supervision of Safe Working Practices in the Atomic Power Industry, to talk about the reasons for the malfunctions.

### **Comment on the Incident**

Yu. Vyshnevskiy: Yes, the station's work is erratic now. In the last four months there have been seven breakdowns, including three when the nuclear shield was

activated. But I would like to stress that this AES has three independently-operating safety systems. Furthermore, all the units meet the international standards and, unlike those at Chernobyl, are housed in a special containment structure.

I. Ipatov: We are let down by the poor quality of the equipment. The shutdowns have occurred because the equipment is unreliable, particularly the electrical engineering equipment which often breaks down. For example, take the steam generators. They are designed for a working life of at least 30 years but in fact last only one-tenth that time. We have major complaints about the equipment which comes from Podolsk, among other places. After all, the premature replacement of the steam generators is an expensive occupation costing the state tens of millions of rubles. Furthermore, hundreds of extra people have to be diverted to servicing the equipment. Three-fourths of the shutdowns at the AES are due, as a rule, to electrical engineering equipment failure, the rest are due to the turbines.

The work of the AES is largely dependent on the knowledge and experience of the people operating it. And even though our station has a training center working to full capacity and another reserve shift is being set up, nevertheless the low level of training of the staff and the lack of practical experience are appreciable. The point is that the workers learn the intricacies of the job as they go along, from equipment in use. This is the same as asking a novice pilot to fly a modern airliner. You need a flight simulator. But there are no simulators here and they are virtually nonexistent at other AES's, too. Admittedly we have now concluded a contract with a U.S. firm for the supply of a special simulator which would fully imitate the work of a power unit, make it possible to carry out the full range of operations—from startup to shutdown—and program various emergency situations and solutions to them. Only this way will staff obtain the expertise that they need and improve their skills. It is astonishing: We have been operating nuclear power stations for so many years but for some reason no thought was given to the proper training of staff or their technical equipment. Nothing is done until disaster strikes.... And it struck at Chernobyl four years ago.

Furthermore, to increase safety it is necessary to remove people from the production process as much as possible and to automate all the work. The example in this respect has been set by the United States, Japan, and the FRG.

### **Voronezh Voters Reject Nuclear Plant**

*PM2905091390 Moscow KOMSOMOLSKAYA  
PRAVDA in Russian 24 May 90 p 2*

[Report by our correspondent V. Tkachuk under the general heading "Chronicle of the Week": "Voronezh"]

[Text] Voronezh people have surely never shown such conscious unanimity before. On 15 May a referendum on the construction of a nuclear heat supply station [AST] was held in the city and more than 500,000 people

supported the ending of work at the Voronezh AST site. Some 81.5 percent of Voronezh people took part in the vote with only 2.1 percent in favor of the station.

Thus the public's opinion is known but the fate of the nuclear station will be settled once and for all by the next session of the city soviet.

A surprising discovery was made by those Voronezh people who came to a meeting with Pamyat leader Dmitriy Vasilyev: All our present-day problems have been created artificially. Apparently, the "Protocols of the Elders of Zion" planned the Soviet economic crisis and other difficulties 100 years ago. If we do not unite around Pamyat, Russia will be destroyed by the Zionists by the year 2000. The Vasilyev patriots, in the words of their leader himself, are anything but anti-Semites, (they like Arabs, for example), they are just anti-Zionists. D. Vasilyev claimed that attempts are being made to discredit him and the true Pamyat by the pogrom-like attacks on Central House of Literature committed by the two other bogus Pamyat organizations specially created for that purpose by Politburo member A. Yakovlev and the KGB.

The two-hour monologue by the populist-orthodox monarchist, occasionally marred by an absence of logic and common sense, eventually bored the audience and they left.

#### **Khmelnitskiy Anti-Nuclear Power Plant Actions Spread**

*LD2705223490 Kiev International Service in English  
2000 GMT 27 May 90*

[Text] An ecological meeting was held today in the city of Khmelnitskiy. Taking part in it were residents of this city and the entire region, because the question on shutting down the Khmelnitskiy nuclear power station evokes concern on the part of all people of the region. People's attitude to the nuclear power plant can be well illustrated by the multithousand meetings; picketing of the project; refusal of the (Dovhuny) cement factory to supply its product to the construction of the nuclear power station; hunger strikes. As is known, the 15 people from Khmelnitskiy today suspended their hunger strike. However, the strikers' protest continues.

Today dozens of large industrial enterprises in the town of Khmelnitskiy, and the region, announced a two-hour-long warning strike. A coordinating strike committee has been set up and a plan of actions worked out. The people of Khmelnitskiy region demand that the Ministry of Nuclear Power engineering give a written confirmation of a moratorium on the construction of the nuclear power plant.

#### **Geographer Summarizes Ukrainian Ecological Concerns**

*90WN0048A Kiev EKONOMIKA SOVETSKOY  
UKRAINY in Russian No 3, Mar 90 pp 74-80*

[Article by F. Zastavnyy, professor and doctor of geographic sciences from Lvov: "Pressing Problems of Environmental Protection and the Rational Use of Natural Resources in the Ukraine"]

[Text] In contemporary conditions when the negative influence of industrial activity on nature has reached a high level and continues to increase incessantly, environmental protection and the rational use of natural resources have become a problem of great significance for the national economy. The problem has been placed on the agenda with special urgency in highly urbanized areas where heavy industry is very developed, where the negative influence of man on the environment is especially significant. In a number of regions pollution of the air, water and land already exceeds allowable limits many times over. In some places a critically dangerous ecological situation has developed.

The Ukrainian SSR belongs to a group of the most ecologically tense regions of the country. While occupying less than three percent of the USSR territory, the republic concentrates more than 18 percent of the entire population of the Soviet Union and produces one-fifth of its manufactured goods and one-fourth of its agricultural production.

Because of the population distribution which has developed, the territorial characteristics of natural conditions and the concentration of natural resources, as well as the special nature of the economic-geographical position of the Ukraine, an uneven settlement took place historically; there are large regional differences in the level of development and in the structure of the types of production, especially in heavy industry. An extremely high density of population and production and, consequently, a very critical ecological situation has developed in the Donbass region. Although this region occupies only 8.8 percent of the Ukrainian SSR territory, 16 percent of the republic's population resides there, including 22 percent of the urban population. The following comparisons testify to the high density of industry in the Donbass especially those types of production, which because of their technology and insufficient environmental controls, have the most negative influence on the environment: this region accounts for 21 percent of the total industrial production of the republic including 64 percent of fuel production, 43 percent of the ferrous metal production, 31 percent of the chemical and petroleum production and 25 percent of the electrical power production.

The region near the Dnepr River occupies second place in population density and the level of industrial concentration. This region accounts for 9.8 percent of the territory and approximately 12 percent of the population

of the republic (including 14 percent of the urban population). At the same time this region accounts for 18 percent of the industrial output of the Ukrainian SSR, including 52 percent of ferrous metal production, more than 22 percent of electrical power output and 13 percent of the chemical and petroleum refining. It should be emphasized that in the Dnepr region, as in the Donbass, a large portion of the production and the population is concentrated in a limited area: in the Donbass - in the industrial area itself and in the Dnepr region - in a narrow strip along the Dnepr. Precisely in these places, due to unacceptably high levels of air, land and water contamination, the problem of environmental protection and the rational use of natural resources is very critical.

The following areas in the Ukraine belong to the group of zones which are most critical in an ecological sense: the Carpathian region, Northern Crimea, the northern portion of Sumy Oblast and the territory of Cherkassy Oblast near the Dnepr, Kiev with its high-capacity chemical and petroleum-chemical industry, a number of rayons in the Kiev, Kharkov, Ivano-Frankovsk, Vinnytsa, Rovno, Khmelnytskyi, Zaporozhye and Odessa Oblasts with their large facilities for the production of electrical and nuclear energy. A large array of ecological measures are being taken and will be taken in the future to lower the radiation contamination in the zone near the Chernobyl Nuclear Power Plant where the largest nuclear accident took place at the end of April 1986.

It is well-known that the Ukrainian SSR is an important region of intensive farming and livestock raising which has the highest percent of its territory devoted to agricultural production in the country; 56.6 percent of its land is cultivated, when, for example, in the neighboring Moldavian SSR and the Belorussian SSR, which are highly developed, only 52 percent and 30 percent of the land respectively is devoted to this use (in the country as a whole the figure is 10.2 percent). Or this example: the Ukraine has 7.5 percent of the agricultural land in the country, 15.1 percent of its arable land, 6.2 percent of its hay production and 1.6 percent of its pastures. At the same time the republic produces more than 20 percent of the country's grain harvest and approximately 25 percent of its meat and milk.

The intensive use of the land, the widespread utilization of powerful, heavy agricultural equipment for carrying out field work has a negative influence of the mechanical composition, the air and water structure of the soil and reduces its fertility. The insufficient application of organic fertilizers to the fields along with the accompanying intense agricultural utilization of the land promotes a loss of humus, an extremely valuable component, with which the Ukrainian chernozem soils are especially blessed.

Rapidly growing cities undoubtedly exert an ever-increasing influence on the ecological situation. There are 429 cities and 916 urban-type villages in the republic, among which are ten cities with a population of more

than a half million people (of these five have more than a million), and 12 cities with 250-500 thousand people. During the period 1959-1987 the number of urban dwellers in the Ukrainian SSR increased almost by 80 percent. It is precisely in the rapidly growing cities, especially in the large ones, that the ecological situation is considered the most critical.

In conditions of the increasing influence of man on the environment one of the pressing problems of economic and social development of the republic and the majority of its regions is the general concern about increasing the scale and expanding the scope of conservation measures, about improving the effectiveness of environmental protection, about the increase in the complex utilization of natural resources and raw materials, about taking effective measures to conserve resources. In other words, we are talking about the necessity of significantly lowering the negative effect of man's economic activities on nature.

In recent years in our country attention towards problems of environmental protection has increased significantly. A more and more active role in the their resolution has been delegated to science and the general public on the basis of democratization and glasnost. The rights and capabilities of the local organs of power have expanded considerably. A growing amount of material and financial resources is being allocated to the rational use and protection of water, land and forest resources, to maintaining air quality. In addition, state capital investment in the work indicated above has noticeably increased. If during the period 1973-1975 (statistics on this issue began to be published in 1973) average annual investment in programs on environmental protection and the rational use of natural resources was 309 million rubles, then in 1987 it reached 434 million rubles.<sup>1</sup> The total sum of all expenditures on environmental protection and the rational use of natural resources (including expenditures for water management) for the period 1981-1987 was 10.3 billion rubles including 1.7 billion rubles for 1987.

In the Ukraine the protection of widely used water resources which more and more are in short supply is especially relevant and critical. In the republic approximately 60 percent of all state capital investment allocated for environmental protection (1987 - 269 million rubles) is spent for this purpose. We are talking, in particular, about financial and material resources directed towards the protection of the very polluted waters of the basins of the Black Sea and the Sea of Azov, the maintenance and improvement in the condition of small rivers and reservoirs, an improvement in the effectiveness of purification facilities and equipment, a broader utilization of recycled and mine water, the scientifically based territorial reallocation of water resources and their economic usage. The unevenness of water resource distribution throughout the republic as well as its increasing shortage is felt most acutely in the southern and central oblasts and requires immediate and radical measures for the widespread introduction of

water conservation technologies, first of all, for the organization of clean types of production, economic water usage for irrigation and its rational use in industry, communal farming, and in every day life.

Recently work has been done to improve water conservation: during the years of the eleventh five year plan on the whole throughout the Ukraine the dumping of contaminated waste was reduced almost by half; the level continued to fall at the beginning of the twelfth five year plan. Despite this the problem is still a long way from being resolved - in a number of large enterprises, especially in the ferrous metal industry, petroleum and chemical industry, coal industry, food processing industry and others, a significant percentage of the water utilized is not treated. In 1987, for example, the volume of contaminated waste dumped in the republic was more than one billion cubic meters.

At the same time it should be noted that many republic oblasts (Volyn, Donetsk, Transcarpathian, Kiev, Lvov, Rovno, Kharkov, Khmel'nitskaya, Cherkassy, Chernovitsy, and Chernigov) have gained positive experience that deserves dissemination - the proportion of waste which is treated according to standards comprises approximately 90 percent and more (in the Kiev area this figure is 99.5 percent).

Special attention is merited by the question of the maintenance, rational use and prevention of the contamination of ground water, the economic consumption of fresh water, of which there is an increasing shortage, and which on the average amounted to 28-32 million cubic meters per year in the Ukraine during the period 1980-1987. In addition, the major part of this volume is consumed by six water-poor southern oblasts - Dnepropetrovsk (3.9 million cubic meters), Zaporozhye (4.3), Donetsk (2.6), Crimean (2.4), Kherson (2.1) and Odessa (1.6). Water consumption in the western and northern regions of the Ukrainian SSR, which are better supplied with fresh water resources, in particular, with the cleanest reserves of ground water, is relatively light. Thus, in the Chernovitsy and Transcarpathian Oblasts the volume of water consumption in 1987 was 0.1 million cubic meters each, in the Ternopol and Volyn Oblasts the figure was 0.2, in the Sumy, Rovno, Zhitomir, Ivano-Frankovsk and Chernigov Oblasts it was 0.3.

Along with fresh water in the Ukraine recycled and consecutive-use water has also been brought into use in economic activity; recently its volume has been 57-64 million cubic meters per year. However, the shortage of water resources in the Ukraine requires a more complete exploitation of this resource as well. This problem has acquired special urgency in water-poor regions where the consumption volume of recycled and consecutive-use water is already rather significant. Suffice it to say that in 1987 the highly industrialized Donetskaya oblast accounted for more than 20 percent of the total volume of this type of water consumed in the republic. At the same time the southern portions of the Ukraine have the reserves for introducing recycled and consecutive-use

water into the economy. Unfortunately, these reserves are not being fully utilized. For example, the proportion of recycled and consecutive-use water of the total water volume used for production needs in the water-poor southern oblasts of the Ukraine in 1987 was only 54-76 percent (the republic average is 79.7 percent).

It is also important to resolve other questions which are closely associated with these. By this we mean continued improvement in the distribution of the productive forces, the orientation of new construction, reconstruction and technical retooling of operating production sites towards regions better supplied with water resources, a switch to the construction of enterprises with nonwater-intensive technologies, as well as carrying out water conservation wherever possible. The oblasts of the western and northern portions of the republic have the most favorable opportunities for deploying new production facilities (although new industrial construction should be limited there as much as possible).

Land resources in the Ukrainian SSR are characterized by the predominance of agricultural usage. Maintaining these resources for agriculture, taking immediate measures to prevent a decline in soil fertility and to improve the chemical composition of the soil, increasing on this basis the volume of production and improving the quality of agricultural products is a vital task of paramount importance which requires an immediate solution.

As is known, a significant part of the fertile, humus-rich top soil in the Ukraine as well as other regions of the country is systematically lost due to water and wind erosion. The regions most severely subjected to water erosion include the Ukrainian Carpathians; the Podolskaya, Pridneprovskaya and Srednerusskaya hills, the Donbass and the Crimean Mountains. In the southeastern Ukrainian SSR wind erosion exerts a negative influence on soil quality. In addition, approximately 5-7 thousand hectares, including arable land and other agricultural land, are set aside each year for the storage of waste materials, slag, etc. The most significant areas for this purpose have been set aside in the Donbass and Dnepr regions where, as we know, large-scale coal and iron ore extraction operations are concentrated. The areas which have been disrupted by anthropogenic development (predominantly by industrial production) comprise more than 250 thousand hectares in the republic. Despite a noticeable decrease in land, especially fertile land, earmarked for nonagricultural purposes, the amount set aside for the needs of industry, transportation, cities, etc., is quite significant. In the future along with the necessity of a drastic reduction in lands set aside for agricultural needs, we are faced with improving the utilization of large tracts of land already being used for this purpose.

In many areas of the Ukraine the quality of land has gotten worse due to the poor quality of irrigation and drainage work in land reclamation programs. On a limited scale liming of acidic soils and the application of



gypsum to saline soils are carried out. The contamination of agricultural lands by chemical substances is cause for special concern. As a result many toxic substances accumulate in the soil which have a negative influence on the quality of plant and animal products and which drastically reduce their marketability. Work on maintaining field-protecting forest belts planted in the past is progressing slowly, especially in the steppe and forest-steppe zones where currently they only comprise approximately 50 percent of protective plantings.

We would like to call attention to the fact that rather limited financial resources are expended on the protection and rational use of land in the Ukraine - approximately 60 million rubles of capital investment per year. The resources go towards the creation of field-protecting forest plantings, the terracing of steep slopes, the construction of antierosion, hydrotechnical, landslide-preventing and other kinds of structures (including structures to shore up river banks). Also included in this category are measures directed towards recultivating lands which were ruined in the process of industrial and construction activity, working in agriculture to maintain soil fertility by using progressive methods of cultivation. In fact, very recently the area under recultivation has grown considerably; if it comprised 12.5 thousand hectares in 1976, then in 1987 it had increased to 25.9 thousand hectares. However, it should be noted, that the volume of work underway on the recultivation of land is very small. It needs to be significantly expanded and, mainly, we need to increase the fertility of this type of land, especially in those areas which are returning to agriculture.

An important direction in environmental protection and the rational use of natural resources in the Ukraine is the fight against water and wind erosion. Work is already being conducted in this direction. During the period 1976-1985, for example, the area under cultivation by stubble- mulch tillage without use of the mouldboard plow increased from 2.1 to 8.3 million hectares, terracing of steep slopes (1976-1987) increased from 0.2 to 0.3 million hectares, the value of the construction of antierosion, hydrotechnical, landslide-preventing and other types of structures increased from 10.7 to 98.3 million rubles; the area of crops sowed by special antierosion planters (1976-1985) increased from 2.1 to 2.2 million hectares. Future plans call for a drastic expansion of the work underway to protect the land. The growing urgency of this problem is explained first of all by the fact that at the beginning of the current five year plan the number of measures undertaken to protect the soil from erosion and the fight against drought in the Ukraine had decreased noticeably (in 1987, for example, the area encompassed by terracing of steep slopes had decreased to 0.3 million hectares in comparison to the 1985 level of 0.7 million, and capital investment in the construction of antierosion, hydrotechnical, landslide-preventing and other types of structures had decreased from 52 to 48.3 million rubles.)

The high territorial concentration in the Ukraine of large-scale sites of heavy industrial production leads to an elevated level of hazardous chemical emissions into the atmosphere. In the republic work is underway to protect the atmosphere. This is achieved by the construction of gas and particle filtering facilities, the implementation of low-emission technologies, the utilization of hazardous substances, the use of ecologically clean forms of fuel, etc. As a result during the eleventh five year plan and the first years of the twelfth five year plan the volume of these emissions essentially stabilized. In 1987, for example, the total volume of hazardous substances captured (rendered harmless) by the gas and particle filtering equipment and facilities in the republic was 35.4 million tons, of which only 15.6 million tons were utilized.

Obviously, most of the hazardous substances were captured in the more industrially developed oblasts where the large-scale enterprises of the chemical, ferrous metal and electric power industries which pollute the atmosphere are located. In just the Donetsk, Dnepropetrovsk and Voroshilovgrad Oblasts, approximately 20 million tons per year are captured, which comprises almost 60 percent of the total volume in the republic. Only a portion of the captured hazardous materials are utilized (1987 - 75.4 percent). Noticeable positive shifts in cleaning up the air in the Ukrainian SSR have yet to take place. The capture of such rather widespread hazardous substances like nitric oxide, carbon dioxide, sulfuric anhydrides and others which often form so-called "acid rains" remains insignificant. The problem of ridding the atmosphere of contamination will continue to increase in urgency in the future as well. We have to take into account the circumstance that the Soviet Ukraine is located in the extreme western portion of the country very close to the industrially developed states of Europe where air pollution is rather heavy. With the dominance of east to west movements of air masses, air pollution in the republic increases as a result.

If we were to give an overall evaluation of the emissions of hazardous substances into the atmosphere in the Ukraine, we would say that they remain quite significant and are characterized by considerable territorial differentiation. For example, the maximum amount of hazardous substance emissions in 1987 from stationary sources was registered in Krivoy Rog - 1289.9 thousand tons. Of this amount 1074.8 thousand tons were gaseous and liquid substances, 215.1 thousand tons were solids. In turn, among gaseous and liquid emissions carbon dioxide is predominant (931.5 thousand tons) followed by sulfuric anhydrides (98.7), nitric oxide (36.9 thousand tons). Heavy emissions of hazardous substances into the atmosphere take place in Mariupol (785.8 thousand tons), Kerch (375.0), Dnepropetrovsk (321.2), Makeyevka (318.9), Zaporozhye (287.1), Kommunar'sk (251.4 thousand tons) and several other cities. These emissions remain high in many large cities of the republic: In Donetsk they comprise 194.1 thousand tons,



Odessa - 106.8, Kiev - 93.8 thousand tons. Unfortunately, we must note that it is becoming ecologically dangerous to reside in a number of cities of the republic.

The problem of protecting forest resources is also an urgent one in the Ukraine. Forests purify the air and increase its humidity, accumulate precipitation and distribute surface runoff more evenly over time, protect steep slopes from erosion, etc.

The implementation of a multifaceted plan of work to protect forests from pests, disease and fire is of paramount importance in the republic. This can be explained by the fact that the area of forest tracts damaged by disease and pests in the Ukraine is quite large and comprises approximately 250 thousand hectares. Forest tracts in the forest-steppe and steppe zones, as well as a number of less densely forested areas of the woodlands, have suffered the worst damage from disease. Their protection from pests and disease using the biological method in 1987 was conducted over an area of more than 222.4 thousand hectares. A portion of the forests, primarily fire-susceptible conifers (their territory comprises about half of the area of all forests and are mainly located in the northern part of the republic) systematically are subjected to fires. In order to discover and extinguish fires in a timely manner an air forest protection program has been organized which covers almost 3.5 million hectares.

In the republic considerable work is underway on forest management and forest restoration projects. For example, in forests earmarked for state purposes forest management was being conducted in an area of more than 230 thousand hectares, forest restoration on 44 thousand hectares (planting of trees on 40 thousand hectares and the promotion of natural renewal on 4 thousand hectares). In addition, the area of plantings in ravines, gullies, in sand and other difficult places on the state and collective farms has been increased. In spite of this, forest protection, forest management and forest restoration measures in the Ukraine are not being carried out at full capacity. In the future we must still significantly expand work on forest restoration and forest management, and the protection of the republic's forest resources from disease, pests and fires.

The creation of protected reserves and carrying out measures on the preservation of the flora and fauna in all regions of the republic have an important conservation significance in the Ukrainian SSR whose natural landscapes have been subjected to the strong disruptive influence of man. Currently the natural preserve fund of the Ukrainian SSR consists of more than 5 thousand sites, whose area exceeds one million hectares. All basic landscapes of the Ukraine are represented by these sites and research on the plant and animal world, as well as the ecological situation, is conducted according to a unified program. Eighteen of the more protected sites account for more than 30 percent of the preserves' territory (364.6 thousand hectares): preserves, game preserves and national nature parks. A number of world

renowned preserves are concentrated in the republic such as: the Askaniya-Nova preserve in Kherson Oblast (founded at the end of the 19th century; in 1919 a people's preserve was created there, in 1921 a state preserve; its area comprises 11 thousand hectares), the Chernomorskiy preserve in Kherson and Nikolayev Oblasts (1927, 57 thousand hectares), the Ukrainian steppe preserve in Donetsk, Zaporozhye and Sumy Oblasts (1961, 1.6 thousand hectares), the Luganskiy preserve (1968, 1.6 thousand hectares), the Carpathian preserve in Transcarpathian Oblast (1968, 12.7 thousand hectares), the Kanevskiy preserve in Cherkassy Oblast (1931, 1 thousand hectares), the Yaltinsky mountain-forest preserve, Mys Martyan (1973, 0.2 thousand hectares) and the Karadagskiy preserve (1979, 2.9 thousand hectares) in Crimean Oblast, the Dunay wetlands in Odessa Oblast (1981, 14.8 thousand hectares) and others.

State national nature parks have been created in the Ukraine: the Carpathian in Ivano-Frankovsk Oblast (1983, founded in 1980 as the Carpathian nature park) with an area of 50.3 thousand hectares and the Shatskiy in Volyn Oblast (1983) with an area of 32.5 thousand hectares.

Such public monuments of landscape art such as "Sofiyevka" in Uman, "Aleksandriya" in Belaya Tserkov, "Trostyanets" in Chernigov Oblast, "Veselyye Bokovenki" in Kirovograd Oblast and others also have become protected territories.

In the future much work will be carried out on founding and organizing new protected reserves in various regions of the republic. The questions which we have touched upon are of paramount interest to Kirovograd, Chernovitsy and Voroshilovgrad Oblasts, where the area of protected nature reserves does not exceed 7 thousand hectares. The creation of these reserves is a very pressing issue in the steppe region in the southeastern part of the republic, the areas near the Sea of Azov, the western portion of the Podolskiye hills, in particular, in the rayons of Opolye (Ternopol, Lvov and Ivano-Frankovsk Oblasts) and Medobory (Ternopol and Khmelnytskyi Oblasts). Preserves, national nature parks and other types could be organized in the northern portion of the steppe zone (Kirovograd Oblast), in the northwestern Ukrainian Carpathians as well as in Prikarpatye in the regions near the Kotynskiye hills. The creation of protected nature reserves in the central and eastern portions of Polesye, in the Dnepr and Dnestr estuaries, the eastern and central forest-steppe zone as well as in a number of other regions of the Ukraine is of particular interest.

As a whole the problem of environmental protection and use of natural resources needs a comprehensive, complex study and better resource and financial support. This problem has acquired great urgency in the tourist areas, especially in the Crimea, in particular, in the southern extreme where in some places the number of vacationers already significantly exceeds the maximum allowable

limits. This problem is of considerable urgency in the tourist zones of the inland areas near the Black Sea and Sea of Azov.

At the present time the extremely important problem of averting potential large-scale negative influences of human activity on the environment has become part of our agenda. This is an extremely urgent, pressing, very complex, not fully studied, ecoeconomic and ecosocial problem, which if ignored, can lead to, and, as experience has shown, often leads to serious and difficult to predict consequences bordering on ecological catastrophes.

The accident at the Chernobyl Nuclear Power Station, as is known, involved human casualties; by the end of 1988 the consequences were measured in losses to the national economy of approximately 10 billion rubles. Near Odessa large volumes of imported highly explosive nitrogenous substances are stored which are used for the manufacture of nitrogen fertilizers. In the case of unforeseen situations this could cause irreversible damage to an extensive adjoining region. As a result of a break in the dike of a large storage pond of an enterprise which produces potash fertilizers in Stebnik (Lvova Oblast) and the dumping of waste into the Dnestr, this river, which used to be considered the cleanest in Europe, has become uninhabitable for many kinds of wildlife because of high contamination levels. In a number of regions water from the Dnestr has become unsuitable for use as drinking water.

The consequences of this serious accident on the future ecology of the adjoining areas have yet to be determined. It is also known that at the end of 1988 in Chernovitsy mass illness among children was caused by environmental pollution. Illness among children was also observed in the neighboring rayons of Ivano-Frankovsk Oblast. The sources of the contamination have yet to be established.

A series of other similar and pressing large-scale ecological problems affecting a variety of aspects of human endeavors has accumulated in the republic and require appropriate scientific attention and an immediate practical solution. Special attention is required at this contemporary stage by the problem of the fate of the Dnepr artificial reservoirs. In the final analysis this problem boils down to substantiating the expediency of their existence or returning the riverbed of the Dnepr to its previous natural condition.

It is known that significant (almost the entire territory of Chernovitsy Oblast) areas of fertile lands were set aside for the Dnepr reservoirs. These lands previously were intensively utilized in agriculture. The creation of the reservoirs required the relocation to new areas of approximately one million people. The material and financial expenditures directed towards the construction and exploitation of the hydroelectric facilities turned out to be very high. In the final analysis all of this entailed expenditures of many billions of rubles. Meanwhile the

great effect which was expected was not achieved. Near the reservoirs hundreds of thousands of hectares of previously highly fertile lands have been flooded and salt-ridden and therefore have effectively been rendered unsuitable for agriculture. The fishing business also did not realize the intended significant development. At the same time blue-green algae has appeared in the Dnepr and its reservoirs which has drastically reduced the quality of the water resources. As far as the effect from the cascade of electric power stations constructed on the Dnepr is concerned, from the point of view of modern ideas and possibilities the effect has also been rather limited. At the same time a new serious and complex problem has arisen which directly affects the interests of millions of people, the fates of large industrial sites, facilities of the social infrastructure and numerous monuments of spiritual culture. We are talking about the danger of a possible break in the Dnepr dams, especially the dams of the Kiev reservoir which would inevitably lead to the immediate flooding of extensive areas along the low-lying left bank of the Dnepr where, as is known, many large cities are located as well as a large number of villages. The potential negative consequences from this would appear to be colossal and irreversible.

In the light of what has been said, in our view, a profound scientific study on the advisability of maintaining the Dnepr reservoirs in the future, the substantiation and realization in this regard of new approaches to irrigating the southern, drought-ridden part of the Ukraine has become urgent. In particular, a deeper study of the expenditure of water resources for irrigation, the conversion to scientifically based standards of watering, a drastic reduction in water loss during land-improvement projects are issues which are of considerable interest. Undoubtedly, these questions as well as others which are associated with them, should be resolved in practice only after their adequate and comprehensive substantiation.

It is important to note that environmental protection and the rational use of natural resources has only in recent years attracted more and more attention of specialists and the general public. Previously despite the adoption of useful resolutions on environmental protection problems, they were nonetheless not fully taken into consideration in economic practice.

It is known that according to Construction Standards and Rules (SNiPAM) currently in force, there must be a certain (rather considerable) distance between a nuclear power plant and the towns where its workers reside. However, this extremely important condition, as we know, was not taken into account during construction of the Chernobyl Nuclear Power Plant. This rule was also violated during the construction of a number of other nuclear power plants, in particular, during the creation of the powerful South-Ukrainian Nuclear Power Plant. The town where the workers reside is located in direct proximity to the nuclear reactors.

How do we extricate ourselves from this situation? There are two possible ways: to maintain a rather large unutilized ("canned") city, which in addition, is well-built and has all the amenities, designed for several tens of thousands of residents and to create a new town for the workers at a more acceptable distance from the plant, or to rebase this city in its entirety to a place less vulnerable to radiation. In both cases large losses of state resources are inevitable. The interested ministry will have to settle accounts with society for this which was caused by narrow departmental economic voluntarism not subject to territorial control. At the same time the delay in relocating the inhabitants of the town indicated above to an ecologically less dangerous place can be interpreted as a crime with all the ensuing consequences. The question arises - who approved the decision regarding the location of the workers' settlement (in violation of the current regulation)? Who has answered for that? Nobody. The interests of the department in this case turned out to be more important than the interests of the republic, its population.

The strict elimination of the existing flawed practice of the departmental approach to the choice of locations for the construction of nuclear power plants, which in our country as practice has shown, is motivated not by state interests but by purely industry interests. As a result the designers (from the same department as the builders), who choose from among the possible locations, attempt to pass departmental efficiency off as public efficiency. Unfortunately, it is precisely in the densely populated and economically developed regions, where the extreme territorial concentration of large-scale nuclear power plants categorically must not be allowed, that they, unfortunately, are mainly constructed. An unconvincing effort is often made to explain this by saying that in these places the territory is already settled, there are corresponding labor resources, railroads and highways have already been built, it is easier to create construction bases, expenditures on the transmission of electric energy are reduced, etc. In other words everything is cheaper, total costs to the department for the construction and operation of these facilities are reduced. However, it is necessary to emphasize in no uncertain terms that in all this we cannot forget about the possibility of unforeseen situations arising. Neutralizing a dangerous ecological situation can be, and as the accident at the Chernobyl Nuclear Power Plant demonstrated, is unpredictably costly. An effective mechanism for preventing irresponsible actions by the interested departments should be created.

Conducting exceptionally thorough studies at the pre-design and design levels regarding the conditions and factors of the construction of these dangerous nuclear plants is of paramount importance for guaranteeing ecological safety. Otherwise this could lead to ecological catastrophes for many regions. In choosing locations for the construction of nuclear power plants a complex study should be conducted of the sites. However, this extremely important requirement often has not been

satisfied. Thus, at one time the construction of a nuclear power plant was planned for the very center of the Donbass, in Donetsk. We should do everything possible to eliminate this kind of mismanagement which allows the coal of the Donbass (this huge basin provides approximately one-third of the entire coal output of the country) to be shipped a thousand and more kilometers away (as we know, more than 100 million rubles per year are spent on this), while powerful nuclear power plants are constructed in direct proximity to it (in "energy-poor areas"). We need to state with complete clarity that from the point of view of the requirements of science regarding the distribution of the productive forces the construction of nuclear power plants in the places named above is a completely incompetent decision, and from the point of view of possible consequences, a criminal one. It is impossible to ignore the fact that a number of extremely important and crucial problems of economic development and ecology have been given to nonspecialists for resolution. In the beginning of 1988, for example, doctors, technicians, nuclear engineers, specialists in thermal and electric energy, as well as others appeared on a program of the Ukrainian television; they all "demonstrated" that the continued accelerated growth in the nuclear power industry in the Ukraine (to a significant degree for the growth of the export of electrical energy to contiguous socialist countries) is a completely natural development since this provides for a reduction of expenditures in the transmission of electrical energy because the majority of its consumers are located in direct proximity to its production. There is no necessity to show that these comrades, who were not experts on the issue of the distribution of industrial sites, did not propose logical alternatives. Nonetheless, these alternatives do exist and they should definitely be analyzed in a comprehensive manner and taken into account in economic practice. The most promising of them is the transfer of the construction of nuclear power plants from the Ukraine to the unpopulated northern and other sparsely settled regions of the country. Undoubtedly, it is not inexpensive to create the plants there; it is more expensive to operate them and to transmit electrical energy from there. However, the accident at the Chernobyl Nuclear Power Plant also has not been cheap. Without a doubt in locating nuclear power plants the principle that it is necessary to consistently and strictly take into account the ecological factor should be followed religiously in economic practice. In all cases this principle should be decisive. Nobody has the right to subject the most heavily populated and developed regions of the country to the risk of an ecological catastrophe.

The intensification of scientific research and the expansion of the work on the substantiation of ecological forecasts for the republic and its regions has become of paramount importance for the resolution of these important problems. Under these conditions the consolidation of the efforts of all existing collectives dealing with

environmental protection, an increase in the coordination of their activities, as well as the formation of new, efficient scientific groups are extremely important.

The initiative of the rector of the Ivan Franko Lvov State University deserves attention and support in every way possible. The initiative regards the creation of an institute of regional ecological problems which would unite the efforts of scientists of different industries and fields towards researching and elaborating proposals to improve the ecological situation in the republic and bordering socialist countries.

#### Footnote

1. Economy of the Ukrainian SSR in 1987. Statistical Yearbook. K., "Tekhnika", 1988, p. 406. Figures quoted further on are also borrowed from this statistical yearbook (pp 397-406). COPYRIGHT: Izdatelstvo "Radyanska Ukrayina", "Ekonomika Sovetskoy Ukrainy", 1990.

#### Potential for Catastrophe Seen at Yuzhny Port Chemical Works

90WN0087B Moscow VODNYI TRANSPORT  
in Russian 8 May 90 pp 2-3

[Article by VODNYI TRANSPORT Correspondents G. Grudev and D. Rakhmanin, Odessa: "Secrets of the 'Secret Facility': A Chemical Giant Capable of Killing All Living Things Around It Appeared near the Black Sea"]

[Text] This article has its prehistory. Last year, while gathering facts for an article about Volga ecological problems, specifically about the danger that hundreds of pipelines running along the bottom of the river pose for people and the environment (See VODNYI TRANSPORT, No 119), we became interested in the most secret and potentially the most dangerous of them, the Tolyatti-Odessa Ammonia Pipeline. The Ammonia "river" flows through densely populated areas of the Volga and Ukraine, crossing the Don and Dnepr Rivers, and a number of other rivers and canals. So, while mentally following the over 2,000 kilometer long path, we also reached the "end point" that a major transport highway does not have anything similar to—the Odessa Priportovyy Works and Yuzhny Maritime Port through which shipment of chemical cargo for export occurs....

#### "Illegitimate" Child of the Agrochemical [Industry]

Yuzhny Port's specialized docks stretch like a narrow strip along the Grigoryev Estuary—carbamide, ammonia, and methanol.... And the Priportovyy Production Facilities hang directly over them on the steep bank. These two not quite related enterprises are tightly linked as if by steel thread by the pipelines that crawl along the shore.

Odessa Port is far from last among structures of the not so remote past that are impressive in scale. But if we trumpeted about BAM [Baykal-Amur Railroad] or

KamAZ [Kama Motor Vehicle Works] throughout the entire country and even the world, this works was born quietly and rapidly thanks not nearly to the selfless assistance of American Businessman Armand Hammer. It was essentially born through deception under the guise of a small enterprise whose activities would allegedly be linked with Yuzhny Maritime Port's needs and functions.

"Departmental morality" was based on the fact that any means were fine to achieve the goal and in this case the cart was placed before the horse: The works generally gave precisely life and a future to port development. This trick would hardly get by in our day. But during those times when decisions affecting millions of people were made in a narrow circle in large Moscow offices and no one among the local population with access to construction [plans] asked nor did they themselves particularly take the trouble with explanations.

So then a gigantic chemical industry appeared right alongside Odessa with millions of inhabitants, in a resort zone, and on the shore of a scenic Black Sea estuary in a strikingly short period of time according to our understanding. Its owner is Agrokhim [Agrochemical] State Association under whose trademark we are currently happily welcoming the "curtailed" Ministry for Production of Mineral Fertilizers. Residents of the entire southwestern region near Priportovyy have turned out to be hostages and the dockers are becoming the first victims.

We have repeatedly reported on the pages of this newspaper about serious accidents in Yuzhny that have occurred while loading ammonia on gas carrying ships. But unfortunately there was no way this could go beyond conversation and the works administration and higher-ranking leaders did everything possible to prevent widespread publicity and to prevent an alarmed public or journalists from gaining access to their secrets.

So, what is being hidden beyond the innocuous mask? Until a year ago, we could only speculate about this. Today, we have specific facts, scientifically based assessments, and expert testimony at our disposal and we want to acquaint our readers with some of this material.

According to the Odessa Civil Defense classification, the Priportovyy Works is a class one chemically dangerous facility. The primary threat for all living things surrounding it are four enormous liquid ammonia storage facilities with a total capacity of 120,000 tons. The ammonia pipeline "freight turnover" is 2.5 million tons per year. Add to this the fact that the works also operates its own ammonia production.

Ammonia rapidly vaporizes and its concentration in the atmosphere can be quite high if it is spilled in significant quantities. Spread by the action of the wind, the gas cloud is capable of covering vast areas.

Scientific predictions, made by associates of Odessa Institute of Low Temperature Equipment and Energy's department of chemistry, environmental protection, and

rational use of nature that is headed by Professor A. Tsykalo, say that during a spill of 10,000 tons of liquid ammonia, a concentration that is dangerous for life will spread for 11.5 kilometers and, if the ammonia pipeline is destroyed (expelling 500 tons of ammonia under high pressure)—it will spread for 7 kilometers.

Under Odessa Priportovyy Works' actual [operating] conditions, significantly larger spills are also possible. We saw a diagram of a possible poison cloud destruction zone during an accident with a spill of 100,000 tons of ammonia at the Black Sea Shipping Company. The diagram was compiled based on calculations and model experiments. The depth of the lethal concentration totals almost 30 kilometers and the harmful concentration—100 kilometers with wind speeds of 1 meter per second and a temperature of plus 20 [degrees Celsius]. Odessa and Nikolayevka Oblasts and a portion of the Moldavian SSR with a total population of half a million people and, taking holiday-makers into account, approximately four million people end up in the accident zone. With southeasterly winds, the cloud can reach Kiev and with northwesterly winds—it will completely encompass the Crimea.

And all of this is far from an idle daydream. Scientists and experts who are qualified in their areas are in no way engaging in the groundless incitement of passions around Priportovyy Works. Alas, the existence of the chemical enterprise is a reality and we need to deal with it.

Those who think that the works is only engaged in the production and shipment of ammonia are thoroughly mistaken. The capacity has been developed to process even more dangerous chemical substances here—methanol and nitrile acrylic acid. Two systems operate to produce carbamide. They are operating a superphosphoric acid transshipment system. It seems that we can endlessly continue the list of very dangerous, in an ecological sense, production.

How reliable is Odessa Priportovyy Works' equipment? Judge for yourself. According to Gosgortekhnadzor [State Committee for Supervision of Safe Working Practices in Industry and for Mine Supervision] data for 1988-1989 and for the first quarter of 1990, there were 77 unscheduled shop outages—due to human error, failure of equipment, instrumentation, and automation, and voltage reductions. And, according to official data, last year Odessa Priportovyy Works discharged nearly 3,000 tons(!) of harmful substances of which approximately 500 tons was ammonia.

Experience shows that malfunctions, leaks, and nonclassifiable production stoppages are now more often the rule than the exception at Priportovyy [Works]. The probability of major accidents is increasing under these conditions.

Odessa Priportovyy Works Director V. Gorbatko himself admitted at a meeting of the Oblast Emergency Commission: During the last 10 years, works requests for

replacement spare parts have only been 10 percent fulfilled. Consequently 90 percent of the equipment is in horribly poor condition since it has exceeded equipment service life.

We will add several more lines to complete the picture. Protection of the Priportovyy Works and its ammonia storage capacity in particular, do not meet requirements demanded of similar facilities (incidentally, we became personally convinced of this), and the possibility of, let us put it this way, malefactors penetrating onto the works' grounds has not been entirely excluded. Aircraft flights occur over Odessa Priportovyy Works. And a military range, on which various types of weapons including artillery are used, is located on the grounds right next to the works.

We are one step away from disaster.

### Breathe More Deeply....

The latest accident occurred in Yuzhnyy on February 11. Incident investigation materials and eyewitness testimony permit us to sufficiently accurately reconstruct the course of events.

At 7:30 p.m., a sharp odor of ammonia was noted at the port where the English gas carrier Havpil was tied up and loading at the time. M. Kolesnik and T. Kirichenko, VOKhR [Militarized Guard] armed guards who were located at the third dock, were the first to be subjected to its effects. Having rescued themselves in their own booths from the poison gas cloud that covered the dock, the women began to communicate by telephone (there is no VHF radio equipment in the posts despite decisions approved long ago) with the works' dispatcher. When they succeeded in doing this, they heard a devastating answer: "You are mistaken. There are no leaks at all, everything is normal...."

The port's duty shift measured the concentration of ammonia in the air—it exceeded the PDK [maximum permissible concentration] by a factor of five. They sounded the alarm and the evacuation of porters was begun. But the results are sad—32 people, actually the entire shift, was poisoned and two—the VOKhR armed guards—were hospitalized.

Just where did the ammonia come from on that evening? The gas carrier or the works could turn out to be the source of the discharge. A comprehensive analysis of the entire port zone showed that there was no leak on the ship. The captain also confirmed this. As is customary, ship systems were certified by a commission from Odessa Priportovyy Works, the port, and the crew upon arrival at the port.

At the same time, researchers and ecologists conducted their own investigation. According to their conclusion, the works' version according to which the discharge occurred on the Havpil contradicts the mechanics of atmospheric processes and does not correspond to the

weather situation at that hour in the area of the Grigoryev Estuary: Under no conditions could warm air have moved from the estuary or from the dock toward the cool shore.

The most horrifying thing in this story is the fact that, even despite requests, no information at all about the danger or about the presence of the odor of ammonia on the enterprise's grounds arrived at the port from the works' dispatcher. As it turned out, the automatic system that monitors the environment was inoperative. But when such discharges of ammonia, occur you can determine that a danger threatens through the scent even without any instruments at all.

"During the last 11 years, the works has warned us about an accident only once," says Port Deputy Director for Safe Working Practices and Safety V. Boldyrev. "That was in April 1984 when a pipe burst on Priportovyy's grounds. At that time, we had to rescue all works personnel and we were also evacuated. We have repeatedly appealed to Works Director Gorbatko and have asked him to guarantee our safety and to provide timely warning about all accidents (ChP), but, as you can see, without results...."

A list of supplemental safety regulations was developed jointly by the works and the port after a serious accident while loading gas carrier Noble Sky in September 1988. One of its paragraphs includes, let us point out at the suggestion of the works' leadership, the permanent presence of a works representative on a ship to monitor during loading of ammonia and during crew operations and immediate cessation of loading during equipment malfunctions. Measures also provided for insuring effective operation of the automated system for monitoring the condition of the atmosphere on Odessa Priportovyy Works' grounds and in nearby population centers. But the benefits of these decisions have also remained on paper. The February accident is graphic confirmation of this. As is the other, that occurred immediately after it while pumping ammonia onto the gas carrier Smolnyy of the Black Sea Shipping Company.

### Like a Bone in Your Throat

You cannot call relations between the dockers and the Odessa Priportovyy Works leadership neighborly. This is like a multi-round match of boxers with completely different [skill] categories. We think it is superfluous to explain what weight the director of the largest chemical enterprise had until recently not only in the Oblast and in the Republic, but also in the Union or how much powerful support the local party and government leadership (now to a greater degree already former [leadership]) provided to him when necessary. At the same, even the "judges" who control environmental organs continuously "favored" him.... But now fortune has turned away from him. The population is rising up and the ecological movement against the Odessa Priportovyy Works is growing now that we are finally getting to the

bottom of this during the era of glasnost. And the works director has already been compelled to take up a perimeter defense.

The tactics selected in this case are appropriate. On one hand, V. Gorbatko does not miss an opportunity to publish calming articles in the local press or to write letters with assurances about Odessa Priportovyy Works' safety to the most varied authorities. "Ammonia and carbamide are produced in practically all developed countries of the world and no one has yet invented a method to do this without discharges into the atmosphere...." Does this really sound reassuring?

On the other hand, the works leader as before attempts to do everything so that "we do not wash our dirty laundry in public." Really, each leak of information is a trump card in the hands of Odessa Priportovyy Works' opponents. How much more calmly could V. Gorbatko live if there was not this foreign element—the maritime port—on the export chemical cargo production line. It is if he has a bone stuck in his throat.... If a discharge or accident occurs at the works, the dockers are always "guilty" of raising noise around it.

Judging by everything, Priportovyy Works' director is dreaming of how to seize control of the port's "poison" docks. We were somewhat surprised at first, after having seen the following paragraph in one of the numerous "proposals for improving the ecological situation": "Transfer Yuzhnyy Port Docks No. 1-4 to Odessa Priportovyy Works maintenance...." We thought, why do this since even now technological maintenance of all equipment located up to the ship's cargo reception devices are completely under the works' control. Later the underlying reasoning of the behind the scenes activity began to come out: Odessa Priportovyy Works takes the port services under its wing and publicity already no longer occurs at the junction between the works and maritime transportation. Works employees have quite a few highly valued departmental benefits and privileges in our difficult times that they naturally do not want to lose and that is why "it is easy for the administration 'to teach' them" how to hold their tongues.

Speaking about relations between the works and the port, it is impossible not to pay attention to this fact. Works employees, even though they do not have either plenty of or the latest word in equipment, are equipped with protective systems, but they have somehow forgotten to "share" them with the dockers....

"We have heard our fill of the agrochemical department's empty promises and right now we ourselves will solve these problems that Odessa Priportovyy Works should have resolved when they first began operating," says V. Boldyrev. "The Black Sea Shipping Company was recently allocated 161,000 foreign exchange rubles for protective systems for port personnel and for crews of Soviet and foreign ships at anchor in Yuzhnyy. We have acquired gas masks and atmospheric contamination monitoring instruments with indicator tubes for various

substances, special suits for our gas rescue team, and medical preparations. We have concluded a contract with a Swedish firm for delivery of five container shelters and prime movers to tow them. Now we will at least not be left to the mercies of fate in the event of an accident."

#### Will There or Will There Not Be Priportovyy?

Right now the question is essentially being posed just like that. An extra-department commission, formed at the direction of the USSR Council of Ministers to comprehensively study the ecological situation, was working in Odessa Oblast at the end of last year.

The prestigious scientists named Priportovyy Works first in a series of ecologically dangerous manufacturers. The commission's very detailed conclusion states, in particular: "Immediately develop a Grigoryev Estuary economic reorientation concept proceeding from Odessa Oblast's development as a recreation center while comprehensively examining possible alternatives—transshipment of ecologically inert, harmless raw materials, resort and recreation development, etc. Determine the prospects for Odessa Priportovyy Works (retooling, elimination, and removal of ammonia storage) based on the general Grigoryev production center development concept. Cease further works development (introduction of new or expansion of existing capacity) until resolution of these issues...."

The overwhelming majority of the region's residents demand closing or retooling the works for production of ecologically safe products. Independent ecologists and experts, people's deputies, and "greens" contend that it is senseless to continue its operation. At the end of February V. Pilipenko, head of Black Sea Shipping Company, sent a letter to V. Doguzhiyev, chairman of the USSR Council of Ministers State Commission on Extreme Situations and once again raised the issue about retooling the Priportovyy Works after the accident while loading the Havpil.

The shipping company is also an interested party in this case—if they close the existing dangerous production facility, it can anticipate large losses throughout the fleet and in Yuzhnyy Port. But to the credit of Black Sea Shipping Company's leaders, they place the State's genuine interests and the people's interests higher than departmental interests. Do the people in the Agrochemical [department] understand the danger Priportovyy Works poses? We think that there is no way they cannot understand. But the fact remains—the powerful union organization does not wish to forgo its profits for any reason, even if we are talking about the health or lives of millions of people. Obviously, they fear surrendering their position most of all...

We also managed to talk to a lot of people both in Odessa and in Yuzhnyy so that we obtained a sufficiently precise perception of public opinion regarding Odessa Priportovyy Works' future. But along with everything else, we also heard these pessimistic assessments: Just who,

they said, will close or cease production if it provides hard currency? Let us clarify this, Priportovyy's chemical product exports total about 360 million rubles per year including 210 million in freely convertible currency. As far as we managed to find out, Odessa and the Oblast do not manage to get any crumbs out of this—everything goes to the center. And there it ends up in the Agrochemical Association's treasury or in the pooled State budget—you will agree that the local resident makes no difference in the big picture.

This problem is not personal but nation-wide. We are not talking only about Odessa Priportovyy Works but about our entire system of a foolhardy attitude toward nature and a devil-may-care attitude toward man.

Finally right now it seems to me that we are beginning to think about what is more advantageous: To take care of the healthy or to treat the sick? Is it compatible with the concept of humanity, morals, and with the logic of common sense to sell people's health for hard currency that is not sufficient even to purchase medicine for those who have lost their health? During the many long years of departmental colonialism, our Black Sea health resorts have been transformed into an ecological disaster zone. Millions of people from all areas of the country and our children have been arriving here to rest and have been leaving ill.... Is it not time to think this over?

And we really can earn hard currency through other humane methods. You do not have to be a great economist to assess that we can obtain much greater profits while developing the resort industry and tourism in this unique climactic zone while creating sports and health complexes and rest facilities instead of chemical enterprises.

The question—Will there or will there not be Priportovyy?—remains open for now. We would like to hope that reason would nevertheless win out.

#### Radiation Added to Azov Sea Pollution Hazards

PM0606110790 Moscow Television Service in Russian  
1430 GMT 4 Jun 90

[From the "Vremya" newscast": G. Kondaurov, identified by caption, reportage on industrial and radioactive pollution of Azov Sea]

[Text] [Newscaster] Summer has arrived, a time of vacations when we take our children to the sun and the sea. We must warn you: One resort area is out. The ecological situation on the Azov Sea has deteriorated to such an extent that the Donetsk Oblast Soviet Executive Committee has been forced to close down a traditional family holiday resort area on the coast.

[Correspondent] The hygiene service is warning that bathing in the Azov Sea is not safe. [video shows health officials taking water samples] The quantity of various microorganisms in the water is several times the permissible limit. Bathing on the beaches of Mariupol and



adjoining areas has been banned for several years in succession. [video shows sign reading "Keep Out!"] According to specialists the sea has, in its northern part, lost 80 percent of its natural ability for self-purification. [video shows sea against a backdrop of industrial installations] And the quantities of industrial and urban effluent and of poisonous chemicals from agriculture which reach the sea in the runoff are getting bigger. These troubles have been compounded by another problem. In some parts of the coast sands with abnormally high background radiation have been discovered. This is a natural phenomenon in the Azov Sea region which is yet to be explained. [video shows sign reading: "Keep Out! Zone of abnormally high natural radiation!" followed by shot of group of experts taking readings on the beach, camera focuses on a counter showing a reading of 0.094]

[Voice of unidentified expert] We have found individual places with a background radiation in excess of 500 microroentgens per hour. This is a case where protective measures, currently in preparation, must be taken.

[Correspondent] Is it possible to restore the Azov Sea's once abundant fish stocks and return to the beaches and the water their therapeutic qualities? Some scientists believe that irreversible processes have set in in the Sea. Deputies and members of a Committee to Save the Azov Sea have raised the alarm.

[P.M. Dovgalevskiy, Mariupol chief hygiene inspector, identified by caption, facing camera] Unless we restore the inflow of fresh water from the Don and the Kuban, unless we stop using herbicides and pesticides, and unless we prevent the pollution of the Azov Sea with effluent from our industrial enterprises, we will create another Aral.

### **Elevated Radiation Levels Around Mariupol Reported**

*LD2605165690 Moscow TASS in English 2300 GMT 25 May 90*

[Text] Mariupol May 26—Local radiologists have reported levels of radiation up to 500 and even 720 microroentgen, 20 times the normal natural background level, in some areas outside the city of Mariupol [formerly named Zhdanov] in the Azov Sea coastal strip.

The chief sanitary physician of Mariupol has reported that Thorium-232 was discovered in the sources of radiation. Storms and landslides have laid bare deposits of monocyte sand on level surface and on slopes.

The level of radiation is described as not hazardous to normal healthy people, as it takes eight hours a day for five months in the sun for the level to reach the dangerous level.

But this is not to be taken too easy. People who have been x-rayed several times this year, or were affected by Chernobyl radiation had better beware.

According to specialists, the entire northern stretch of the Azov Sea coastal area needs a close study straight away. With a map of sources completed, concrete or earth covers should then be used to neutralize the sources.

Work is scheduled to begin straight away.

### **Goskompriroda Chairman on Leningrad Flood Barrier Construction**

*LD0506093190 Helsinki Domestic Service in Finnish 0600 GMT 5 Jun 90*

[Text] Soviet environment minister [as heard] Nikolay Vorontsov is of the opinion that the Leningrad dam is a very bad solution in ecological terms.

In an interview with the DEMARI newspaper, Vorontsov says that the Leningrad dam is a classic example of a technocratic way of approaching the protection of nature. However, he gives us to understand that it is no longer possible to interrupt the building of the dam. Vorontsov admits that according to all information available the state of the water in that part of the Gulf of Finland isolated by the Leningrad dam has worsened considerably.

Environment minister Vorontsov will start his visit to Finland the day after tomorrow [7 June].

### **Commission To Examine White Sea Pollution Incidents**

*LD0506094690 Moscow Domestic Service in Russian 2300 GMT 4 Jun 90*

[Text] The ecological situation in the White Sea has worsened. Many marine animals have been washed up on the shore. This time the epicenter of the ecological explosion was the ancient Pomor village of Petominsk, which is several dozen kilometers west of where the first two instances of starfish being washed up en masse occurred.

The situation on the eastern shore of the White Sea has also worsened. Ten dead seals have been found in the area of the Zemlegorsk lighthouse.

Specialists still cannot say what the reason for the disaster was. One suggestion is the jettisoning of rocket fuel by a submarine which was registered this winter. Members of a special commission set up in Arkhangelsk are flying out today to the latest area where marine animals have been washed up.

### **Rally in Arkhangelsk Protests Nuclear Test Site**

*LD0406221490 Vilnius Domestic Service in Russian 1920 GMT 4 Jun 90*

[Text] Nowadays many people are worried by the economic and ecological situation, especially in the area of the White Sea. We have received a resolution from a



rally held on this matter in Arkhangelsk on 1 May this year. Here is what it says in part:

Thirty-three years ago, by a resolution of the CPSU Central Committee and the USSR Council of Ministers, the islands of Novaya Zemlya were taken away from their indigenous inhabitants, the Nenets. Since then the archipelago has been outside the jurisdiction of Arkhangelsk Oblast: the military built a nuclear test site on it. Local residents started to notice the appearance of fish without scales and the disappearance of [word indistinct] from [word indistinct] deer. Today, in connection with the scrapping of the nuclear test site near the city of Semipalatinsk, the Novaya Zemlya archipelago will become the only nuclear laboratory of Moscow politicians, and this means that the quantity of explosions there will increase sharply. Belousov, the chairman of the State Committee of the USSR Council of Ministers for Military and Industrial Questions, completely rejected the appeal of the residents of the Nenets Okrug to scrap the nuclear test site, citing as his reasons that that is how things are for the time being. Belousov also gave assurances to the nuclear test site. However, in August 1987, as a result of an underground nuclear explosion in Novaya Zemlya, there was an emission into the atmosphere of radioactive iodine 131. The scale of that pollution can be gauged if only by the fact that a protest was lodged by the Norwegians. We participants in the protest rally consider that one must not fight for international security by methods dangerous for one's own people and against its will. We appeal to the city committee and the soviet of people's deputies, and demand an end to nuclear testing on the islands of Novaya Zemlya, and that the islands of Novaya Zemlya be handed over to their indigenous inhabitants. In connection with the appearance of continued construction of the atomic power station, we demand the creation of a commission of the oblast soviet to monitor construction.

### **Bratsk Industrial Development Reviewed as Pollution Culprit**

*PM2405143990 Moscow Television Service in Russian  
1700 GMT 22 May 90*

[From the "Vremya" newscast: Boris Kostenko reportage on pollution at Bratsk GES]

[Text] [Boris Kostenko] [video shows Kostenko standing before a dam] The Bratsk GES [hydroelectric power station], built nearly 30 ago, still impresses by its colossal dimensions today. However, when it was built, few people thought about ecology. And today very serious issues which were ignored for years have turned into a grim problem for the whole region.

A favorite saying at the time was that the whole country was building the project. The labor upsurge and the genuine enthusiasm of the young conquerors of the Podunskiy rapids served as inspiration [video shows old footage of construction site]. Songs were composed and poems written. But years passed, and now... The trees which were not removed during the flooding of the

reservoir have started rotting in the absence of oxygen at the bottom of the lake, and their bark has started releasing phenol which has acquired notoriety after the Bashkir events. Together with the Angara water, which was once super-pure, phenol is seeping into the city drinking water reservoirs. One in three fish in the Bratsk reservoir is diseased. The huge water reservoir and the almost total removal of woods from its banks have changed the climate from sharply continental to temperate [video shows bleak landscape]. A recent study has revealed that the water contains some 50 noxious elements, and the air six times that number, almost 300.

The list of polluters is headed by the Bratsk aluminum plant, the biggest in the world, followed by the silicon works, the thermal power station, motor transport, and, naturally, the Bratsk timber-industrial complex, one of the biggest in the world. [video shows industrial installations] According to a recently compiled independent ecological assessment of experts associated with the UNESCO international center for appraising effects on the environment, some R4 billion would be needed to produce a situation at these enterprises which could be described as normal from the ecological viewpoint.

[S.Yu. Ivanyak, director of a section of the International Scientific Center for appraising effects on the environment (Bratsk), identified by caption] Probably the main reason for the situation which has taken shape in Bratsk is the basic ideology behind its construction. The scale of industrial production has turned the once-blooming tayga around Bratsk into a man-made desert. [video shows dead trees and scenes of desolation] It now spreads over an area of more than 100,000 hectares.

The main thing is not to grow old at heart, to sing the song which we have begun to the end—the first verse of this song was sung when the Bratsk GES was built, the chorus was sung when the world's biggest production facilities were started up, and it remains for us to sing the last two to three lines. Ecologists give us 5 to ten years.

[Announcer] Not much time, you will agree.

### **Transcarpathian Radar Station Plan Halted**

*LD0406134690 Moscow Television Service in Russian  
1200 GMT 4 Jun 90*

[From the "Television News Service" program]

[Text] On Friday [1 June] the Television News Service carried a report from the Transcarpathian region, describing the inhabitants' protests against planned construction of a radar station. We have received news that an extraordinary session of the oblast soviet has adopted a decision to stop construction of this major military radar station in the Transcarpathians.

### Commission Discusses Aral Sea Pollution Problems

*PM2805144590 Moscow Television Service in Russian  
1430 GMT 23 May 90*

[From the "Vremya" newscast: Reportage by M. Ganiyev, N. Prokofyeva on ecological situation in Aral region]

[Text] [Announcer] In March-April "Vremya" screened a series of reports about the ecological catastrophe in the Aral region. Our special correspondents Nataliya Prokofyeva and Mukhtar Ganiyev reported at the time on the calamitous situation in that area. These reports met with a response not only from you, comrade television viewers, but also from those who have a duty to attend to these problems by dint of their profession.

An itinerant session of the USSR Council of Ministers Commission for Emergency Situations has been held in Nukus. Here is a report from Nukus by our special correspondents.

[Prokofyeva] And so we return to the Aral region. Before meeting to discuss the emergency situation which has developed here, members of the commission—they include representatives of Central Asian republics, scientists, heads of ministries and departments, and representatives of public organizations—visited the places where the ecological tragedy is blatantly obvious.

This is Muynak. A dying city on the banks of the former sea. The water has disappeared, and people are leaving. [video shows abandoned houses, deserted streets, members of the commission in conversation with those who remain] During the past two decades the number of inhabitants here has decreased by one-third.

[M. Ganiyev] These ships, lying on the bottom of the dried up sea are being dismantled. [video shows rusty shipwrecks] They will be smelted and turned into something that people can use. But what will happen to the city? People who have lived here for a long time relate that more than one commission has been here. But an answer is still awaited. There are deserted streets, abandoned houses, people's faces reflect dismay and worry. [video shows scenes of desolation]. A grand hotel complex which never came into use stands on the former shore of the sea which has retreated, a monument, as it were, to past mismanagement. [video shows hotel complex]

[Prokofyeva] [video shows map of Aral Sea] The sea is losing 35,000 cubic km of water annually through evaporation, while only 1,700 cubic km of water flow into it. At present, the Amu-Darya's water never reaches the Aral. How can the situation be saved? This was discussed at the conference in Nukus. The conference was addressed by commission members, representatives of the public, and scientists. [video shows shots of the conference and interview with unidentified commission member]

[M. Ganiyev] What conclusions has the commission reached?

[Unidentified commission member] It is difficult to give a clear-cut answer to this question. I will try and formulate a number of conclusions reached by the commission.

The first conclusion is that quite a lot is being done to solve the problem of the Aral Sea. The second conclusion is that what is being done is insufficient, as regards resolving both the Aral problem and the problem of providing people with normal living conditions. Incidentally, we put the second half of this problem first, because saving the Aral is not a problem that can be resolved overnight, it will take time, but people must be provided with normal conditions as quickly as possible. This is why I said that there is no simple answer to this question. And the third conclusion we have reached is that we must do even more, and specifically that we must draw up a comprehensive program, so that people are not dealing with partial problems in isolation, without knowing what the other side is doing. And so it has been decided to draw up a comprehensive program of action on the Aral by the end of the year....

[Announcer] It seems to me that the solution of this problem brooks no delay, every day counts here.

### Kazakhstan To Stop Semipalatinsk Nuclear Tests

*LD0506214190 Belgrade TANJUG in English  
2008 GMT 5 Jun 90*

[Text] Moscow, June 5 (TANJUG)—The Supreme Soviet of Kazakhstan, a republic in the Soviet Union, today decided to put a stop to nuclear tests at Semipalatinsk, after more than forty years.

The decision has been taken [words indistinct] from the public, which has for decades been [word indistinct] that the deadliest of weapons were being tested in the immediate vicinity of their homes.

At a number of [word indistinct], the population expressed determination to move to the nuclear testing ground and bodily prevent further tests from being carried out there.

Research has shown that the Semipalatinsk region, nearly 4,000 km from Moscow, has a rising incidence of cancer and defective children and that the vegetation has been polluted by radiation.

### Supreme Soviet Deputies Tour Semipalatinsk Test Site

*LD1106155590 Moscow TASS in English 1511 GMT  
11 Jun 90*

[By TASS correspondent Yuriy Rublevskiy]

[Text] Moscow June 11 TASS—USSR people's deputies from the group Soyuz have described their stay at the Semipalatinsk state-run central nuclear test site, eastern Kazakhstan, as a "walk in the fresh air".

For two days they familiarised themselves with the operation of the test site and the living conditions of the inhabitants in nearby areas, and [then] returned to Moscow on Sunday.

The law-makers' trip to the test site was prompted by letters, statements and remarks, including those in the USSR Supreme Soviet, by a number of deputies accusing nuclear scientists, as well as by contradictory articles in the Soviet media concerning the test site operation.

The Kazakhstan Council of Ministers and the Supreme Soviet decided to close down the test site immediately. Central authorities will now have their final say. The trip by USSR people's deputies to the city of Kurchatov, the existence of which was known only by a limited circle of nuclear experts only five years ago, fits into this context.

Accompanied by specialists, equipped with apparatus to gauge radiation levels and environmental pollution, the members of parliament toured those places where the tests of nuclear weapons and devices had been carried out, and visited research laboratories.

Among the inspected facilities were wells and galleries, in which underground nuclear tests were carried out only recently, an artificial lake, brought into being by a directed nuclear blast, and the "experimental field" where the first Soviet nuclear and hydrogen bombs had been tested.

The deputies and the TASS correspondent accompanying them during the tour saw for themselves that [the] radiation level in the wells and galleries was up to universally accepted norms, while that at the sites of surface and air burst carried out at the test site before 1962 is 5-6 times as high as permissible levels. Those places are fenced off to prevent people and even cattle from entering them.

The deputies exchanged opinions with representatives of the military, party and local government authorities of the city of Kurchatov about the future destiny of the test site.

Participants in the meeting declared in favor of general and complete cessation of nuclear tests. But they believe that the closure of the Semipalatinsk test site at a time when nuclear tests do not cease and even increase in other countries may entail serious consequences for the Soviet Union's security and for Soviet nuclear science.

They voiced complaints addressed to the Soviet central government which "shows a certain constraint when faced with pressure from a number of Kazakh leaders and members of parliament who press for closing down the test site guided by a desire to make political capital disregarding state interests".

At the same time participants at the meeting spoke out in favour of paying compensations to the population who experienced the consequences of surface and air nuclear bursts carried out at Semipalatinsk test site before 1962.

Underground nuclear detonations are conducted with the strictest ensurance of a whole number of measures ruling out harm to the health of the test site personnel and the inhabitants of nearby villages, Yuriy Tsaturov, deputy chairman of the State Committee for Hydrometeorology, told TASS.

More than 300 observation stations and laboratories of the committee in Semipalatinsk region and neighbouring ones point out that the content of radioactive products in the air, water and land there is the same as in other regions of the Soviet Union, such as, for example, in Biysk, Alma Ata, or Moscow region.

Underground explosions may be conducted because they are necessary. In order to reduce the seismic effect which influences the population's mental health, the yield of nuclear weapons could be lowered, Tsaturov believes.

USSR People's Deputy Anatoliy Andreyev also believes that it is necessary to go on testing nuclear weapons in the interests of the Soviet Union's security.

"I stand for a continuation of the operation of the Semipalatinsk test site and I believe that the government should immediately determine its attitude towards the issue," he told TASS.

This afternoon the deputies who returned from the city of Kurchatov were expected to hold a conference for Soviet and foreign journalists.

### **Deputies Differ on Semipalatinsk Test Site Health, Safety Issues**

*LD1106171590 Moscow TASS in English 1702 GMT  
11 Jun 90*

[Text] Moscow June 11 TASS—Underground nuclear tests, conducted at the Semipalatinsk nuclear test site, are absolutely safe to the inhabitants of the nearby regions of Kazakhstan, USSR people's deputies, who returned here after a two-day trip to the test site, told a news conference here today. The idea of the trip was put forward by Colonel Nikolay Petrushenko, one of the activists of the deputies' group Soyuz.

The deputies believe that the veil of secrecy that for a long time concealed the operation of the test site from the public eye led to widespread radiophobia, to a situation when people cease to believe any official information.

In addition, it is advantageous to the leadership of the republic to explain a high sickness rate among the local population by the effect of radiation while in actual fact the causes are in mal-nutrition, the undeveloped nature of the social sphere and the appalling ecological situation, Galina Fomenko, member of the parliamentary Committee for Women's Affairs, and other participants in the trip believe.

Participants in the news conference emphasised that inhabitants of some areas were really exposed to radiation in 1949-1963 when air nuclear tests were conducted.

However, none of local residents fell ill with radiation sickness as a result of nuclear tests, Lieutenant General Sergey Zelentsov, a spokesman for the USSR Defence Ministry, told journalists.

Radiation background in areas surrounding the test site is now not more than 20 micro-roentgen an hour, which is within norm (radiation background in Moscow is 18 micro-roentgen an hour), he said.

However, not all people's deputies of the USSR are convinced of the "harmlessness" of the Semipalatinsk test site. Another commission of deputies led by Yuriy Shcherbak, member of the parliamentary Committee for Ecology, visited the test site in January this year. Shcherbak is known for his efforts towards making public all consequences of the Chernobyl disaster.

Upon returning from the Semipalatinsk test site, Shcherbak said that there was an indisputable link between nuclear tests and an increased rate of cancer diseases and psycho-neurotic disorders, a shortened life expectancy, and a decline in the natural immunity in children.

Following the recent decisions by the Kazakhstan parliament and government to immediately close the test site down, the situation has become aggravated still further.

The Defence Ministry-suggested gradual transfer of tests to the Novaya Zemlya Soviet test site is, naturally, giving rise to protests among the population of the Soviet Union's northern areas.

#### **People's Deputy on 'Psychological' Illnesses at Semipalatinsk**

*LD1106223690 Moscow Domestic Service in Russian  
1800 GMT 11 Jun 90*

[Text] A press conference of the people's deputies who have returned from their visit to the region of the Semipalatinsk test range took place today at the USSR Supreme Soviet. Listen to an excerpt from the speech made by Yuliya Yuryevna Sokolova, secretary of the Committee for Glasnost.

[Begin Sokolova recording] We had many opportunities to become acquainted with different activities at the test range, to meet also the test range scientists, the citizens of the town of Kurchatov, the leadership of the Semipalatinsk Oblast Party Committee and to look at Semipalatinsk's medical establishments, to meet specialists in

medicine who work in the oblast. But before the visit took place we had quite a long conversation with Professor (Isib), an eminent specialist in the field of radiobiology and medicine, who once worked in Semipalatinsk Oblast at the head of a very large group, the special medical commission, and who came to his own conclusions regarding people's health, their diseases, the reasons for those diseases, and an analysis of this situation. We were trying to prepare ourselves to some extent for the visit. We were alarmed because of the very diverse reports about how the health of those who live in the test range region suffers.

We were armed with dosimeters. We flew over the test range. We landed where we thought it was necessary. We measured radiation everywhere, but to tell the truth, the radiation levels everywhere—in the places where people live and in the places of the test range where they do not live—was sometimes far less than in Moscow. I think that the excessive outburst of emotions in connection with life at the test range and the consequences of its activities—this very long silence, absence of information—led to misinformation, to psychosomatic fears, which probably affected people's health. I think that because of such emotional tension and those fears, a person who is gullible concerning unproved information can become ill. That is one point. Another is the inadequate diet of children and women, generally of those who live near the test range zone, in the rayons alongside our nuclear test range. There are no vitamins at all.

When you are approaching the town of Semipalatinsk when it is cold, and when all 299 boiler shops are working—please note that there are 299 in such a small town—using very unclean coal, basically carcinogenic coal, it becomes possible to imagine what the air is like in this town, what the children of the town breathe, what children, women, men and old people breathe.

So, in order to make such absolute conclusions about the ruinous influence of the test range on the health of the people, we have to be well armed with data. The social sphere of those who live in the test range zone needs revising. Special investments are needed to make the medical care for these citizens, their diet and their living conditions much better. This means that the very fact of living next to some kind of a risk zone—we cannot deny that a person feels that the test range is somewhere nearby, even psychologically—ought to be compensated, not just by some sum of money, but also by his living conditions, which have to defend him from many negative factors, including factors of a psychological nature. [end recording]

## AUSTRIA

## Environment Seen As Key Campaign Issue

90EN0627A Vienna DER STANDARD in German  
23 Apr 90 p 6

[Text] Vienna—The OeVP [Austrian People's Party] and the SPOe [Socialist Party of Austria] are both questioning the other's environmental competence. Chancellor Franz Vranitsky stated at the SPOe's Environment Conference on Saturday [21 April] in Vienna's convention center that the OeVP's "Ecosocial Market Economy" concept was neither new nor viable, characterizing it as "slight and containing a lot of chaff." The chancellor cited the energy concept proposed by Economic Minister Schuessel as an example. Its first version would have increased carbon monoxide instead of lowering it. Exclusive reliance on voluntary compliance and on the self-regulating power of the market would not lead to success. Vranitsky favors environment levies, especially a sewage-disposal tax.

## "On the Defensive About Programs"

OeVP Secretary-General Helmut Kukacka commented in response to the SPOe Congress that the socialists could offer nothing that corresponded in quality to the "ecosocial" market economy concept and that the SPOe has been forced to be on the defensive with regard to programs.

SPOe's secretary general, Josef Cap, on the other hand, declared that "neither the OeVP, dependent as it is on commercial and agricultural lobbies, nor the Greens, divided by ideological trench warfare," could effectively deal with the environment; initiatives could only be expected from the SPOe.

At the occasion of "Earth Day," proclaimed by American environmentalists, Environment Minister Marilies Flemming also offered some comments. She, too, called for significant environment levies, for real help to the East to protect the environment and for abandoning nuclear energy.

Vienna's environmental city councillor, Michael Haepf, in turn, asked the minister for an environment compatibility test. At the SPOe Congress he announced subsequent meeting, which would be concerned with the environment and not with election strategy.

The FPÖe [Freedom Party of Austria] discredited the SPOe meeting as the product of last-minute panic. The SPOe tried to put on a "green coat" at the last minute commented the liberal environment spokesman, Gerhard Spitzer.

Otto Schily, who recently switched from the West German Greens to the SPD [Social Democratic Party], was a prominent guest speakers at the convention center. He thanked Transportation Minister Rudolf Streicher for his successful efforts to ban night-time truck traffic.

In addition to such steps [he continued] we must experience a basic change in attitude. Schily reminded that climatic changes would occur and had already occurred because of energy requirements, motor traffic and agricultural production; we should, therefore, aim for a radically different economic system. He suggests using "legal political instruments in conjunction with economic incentives."

## DENMARK

## Government Plan To Cut Fertilizer Runoff Water Contamination

90WN0080A Copenhagen BERLINGSKE TIDENDE  
in Danish 9 May 90 p 4

[Article by Ole Dall: "Plan of Action for Better Environment in Danish Agriculture"]

[Text] Agriculture is not meeting the goals of the clean water plan and the government wants to launch an extensive new plan of action before 1 April next year. The Social Democrats and the Socialist People's Party agree that new initiatives are needed.

In its new plan of action, the government wants to use both the carrot and the stick to make agriculture increase its efforts to clean up the water in Denmark.

Yesterday, Environment Minister Lone Dybkjaer (Radical Liberal) presented a report on the clean water plan. The municipalities and industry are living up to its requirements, but agriculture probably will not meet its goal of cutting the nitrogen burden in half.

"Individual farmers have done what was asked of them," said Lone Dybkjaer who, instead, criticized the agricultural organizations.

"What they claimed would work has not worked," the minister said. She claimed that the organizations had let the farmers down by not putting enough emphasis on the environmental aspects of farming.

Lone Dybkjaer would like to see a dialogue with agriculture, now that the Agriculture Ministry—in conjunction with the Environment Ministry—will develop a plan of action by 1 April next year.

So far, there is no word as to what means will be used to guarantee a successful environmental effort. In general terms, the main section of the environmental report states the following:

"The plan of action shall guarantee a strong Danish agriculture that will function, change, and develop in harmony with nature and that, at the same time, will be competitive and financially independent. The plan of action is to guarantee that the total fertilizer use in agriculture is brought down to an environmentally sound level."

"With regard to supplementary means of control, whether they be in the form of increased information and education, altered regulations, or economic means of control, the plan of action will promote and support incentives in agriculture for further improving the environment."

"We must thoroughly examine the environmental problem in agriculture," Lone Dybkjaer said.

The Social Democrats and the Socialist People's Party agree with the minister that new initiatives are needed in agriculture.

"But with all due respect to the good work that has been done, there is still no word as to what the government wants to do," Dorte Bennedsen (Social Democrat) said. She added that waiting until 1 April of next year to present a plan of action would take too long.

Steen Gade and Leif Hermann of the Socialist People's Party called the report a "pleasant admission that new and far-reaching methods must be used to create the proper relationship between agriculture and the environment." But the Socialist People's Party is also seeking a "clear description of the main lines along which this plan will be based."

The Progressive Party is particularly critical of Lone Dybkjaer's report.

"It is just another excess that will be used to make it even more difficult for agriculture to exist," said Ernst B. Schmidt (Progressive Party).

#### **Agriculture: Plan of Action a Good Idea**

The agricultural organizations reject Environment Minister Lone Dybkjaer's assertion that they have given their members poor advice. But they are prepared to cooperate actively in creating a plan of action for agriculture and the environment in Denmark.

"We need to know what they have planned for Danish agriculture. A plan of action will tell us this and, consequently, we welcome the plan."

This was stated by Axel Ladegaard Jensen, vice-chair of the Danish Farmers Associations, in his comments concerning the government's decision to come out with a plan of action for agriculture. He added, however, that if this meant a tightening of environmental regulations, it would have an impact on the economy, for both the individual farmer and society as a whole.

Axel Ladegaard Jensen noted with satisfaction that Environment Minister Lone Dybkjaer had admitted that the individual farmer had done what had been asked of him or her, but said it was unreasonable to say that the farmers' organizations had done nothing. "Among other things, we are working with a plan to make better use of manure," Ladegaard Jensen said.

Lone Dybkjaer said that farmers had been given poor advice by their organizations. Axel Ladegaard Jensen rejected this and complained that the environment minister had unfortunately focused on the use of chemical fertilizers, but had overlooked the fact that there is a difference between usage and leaching.

He believes that the environment minister has an insufficient understanding of agriculture when she says that farmers have chosen the wrong crops to meet the requirement of having green fields the year around. He said that winter crops needed more nitrogen and gave greater yields, so that the net result with regard to leaching was considerably higher than in the case of spring grains.

Lone Dybkjaer's ideas on ecologically sound farming fell on fertile ground at the Farmers' Associations. "But how quickly this develops depends on the prices we can get for our produce," Axel Ladegaard Jensen said.

He denied that farmers always stood in opposition. "We would like to have a dialogue with the minister, but she must be prepared to compromise and to respect some of the things we present," he said. Ladegaard Jensen rejected the minister's thoughts on regulating with quotas and fees. "If she wants to destroy incentive in agriculture, she should just bring up ideas like those," he said.

#### **The Clean Water Plan**

Municipal cleaning facilities requirements met:

—By 1992, 60 percent of the waste water will be purified of nitrogen and phosphorus.

—By 1994, 100 percent of the waste water will be purified.

Industrial emissions requirements met:

—By the end of 1993 nitrogen emissions will be cut by half and phosphorus emissions reduced by 97 percent.

Agriculture requirements met:

—The requirement for utilizing manure is expected to be met by the end of 1992.

—The requirement for establishing green fields is already more than met—73 percent of agricultural land is comprised of green fields.

Requirement not met:

—Cutting the nitrogen burden in half will not be accomplished with present means.

## FEDERAL REPUBLIC OF GERMANY

### Vegetable Oil as Alternative Fuel Source Studied

90WN0008A Munich SUEDEDEUTSCHE ZEITUNG  
in German 3-4 Mar 90 p 10

[Article by Rainer Olbert: "When Fish Profit from Tanker Disaster"]

[Text]Munich, February—Bernd Reuse states that his ministry is again pressed from all sides to do something about the vegetable oil engine. It is by no means only the farmers' associations which are doing this, or factories interested in its production, but now also politicians. Reuse is the head of the Department for Ground Transportation and Traffic Systems within the Federal Ministry for Research and Technology (BMFT). Among its problems is the response to the question, which motor fuel should be given preference in view of the serious ecological damage. The difficult technical problems with hydrogen propulsion, which had been promoted with great promise, provided relevance to the question.

When Reuse enumerates the advantages of vegetable oil as fuel he sounds like a missionary preaching to a wall of ignorance and prejudice. He speaks of the "closed carbon dioxide cycle" which is assured by the fact that the CO<sub>2</sub> released during combustion can be reabsorbed by the growing oil-producing plants. In this manner the feared worsening of the greenhouse effect could be prevented. In addition, no sulfur is released; no heavy metals and little soot gets into the environment. Even loads from vegetable oil tankers springing a leak on the ocean would not—as is the case with mineral oils—kill creatures, but rather provide nourishment for them. However, the procedure would be of particular benefit for agriculture.

In this country farmers are induced to avoid excess crops by being paid state funds for letting farm land lie fallow. Now, the question arises if it would not make more sense to let farmers make money planting oil plants and contributing thus to the production of fuel. Mr. Reuse's ministry has—after generous promotion of hydrogen propulsion, where the tanker sector poses particular technical problems, as well as of the not yet matured electrical cars—granted for the first time funds for the vegetable oil engine. The BMFT provides more than five million DM for ongoing tests at the Porsche factory with five German engine producers (Porsche is not among them) participating with their products. According to Reuse, the testing is to determine "which engines withstand the combustion of rapeseed oil and the state of exhaust gas."

#### No Counterarguments

The first test results essentially confirm what experts had long known: vegetable oil can replace diesel as fuel. In addition, emission measurements did not reveal any results which would be in opposition to the use of vegetable oil. All this is based on the principle that the

amount of emitted gases and harmful substances largely depends on the combustion process of an engine. Regarding the engine capability for efficient combustion with favorable emission results of vegetable oil, the aggregate by the Elsbett Company of Hilpoltstein has—also in the opinion of many experts—the most favorable outlook. It appears that the researchers at Volkswagen also reached this conclusion, as they tried, without success, to purchase from the Elsbett Company the engine it developed. Peter Walzer, head of the VW Concern Research, who, however, was not yet employed by the Wolfsburg Company at that time, still approves of the action on principle: "Why should we not grab it, if there is something which is favorable in usage and emission and for which we can save the development costs?" However, many experts are of the opinion that VW wanted to buy in order to silence a promising competitor.

The oddity is, though, that VW is participating in every engine test initiated by the Federal Government at Porsche, while the Elsbett Company is not doing so, even after having been asked several times by the ministry. The question presents itself, what good is such a test if the most promising candidate is missing, and what induces a favorite, such as Elsbett, to stay away from a comparison which could prove that their patent for effective combustion with low emission of vegetable oil is the most suitable in the whole country. Ludwig Elsbett, head of the Hilpoltstein company, displayed anger when he commented on this: "This test appears as if a good friend provided Porsche with business worth millions. For me this is nothing other than a very stupid mistake. Why should I participate, as our combustion system is actually quite different. The others don't really have a vegetable oil engine." Elsbett also states that he would not again supply his aggregate to a car manufacturer. He did that once already with the result "that others published his technology without naming him as the inventor." Instead of the tests at Porsche, Elsbett proposes "an objective large scale test in the Bundeswehr" and "a testing by the TUV [Association for Technical Inspection]." The latter has already certified to Elsbett that his engine has a combustion system for diesel which clearly meets most of the rigid U.S. emission standards.

Elsbett has for years promoted his vegetable oil concept and often is presented with the argument that the Federal Republic was too small to cultivate oil-producing plants in large quantities. Elsbett admits that this was the case but that this was no excuse from the obligation to make sure "that developing countries would not make the same mistakes we made during their expected dramatic growth in the use of automobiles."

Not all of the Elsbett proposals are supported by science. However, the core of the concept to replace the already limited supply of fossil fuels as rapidly as possible by plant fuels, which, theoretically, are available without limitation, has found widespread support. For Arno Strehler of the Bavarian State Office for Soil Technology, Freising-Weihenstephan, the question, in view of the

ecological problems, is no longer "if fuel from biomass is the right way, but rather *how* would be the fastest way to get fuel from biomass into the existing systems." He has little tolerance for the engine tests at Porsche sponsored by the Federal Government: "The ministry is spending a lot of money to have it determined that conventional injection diesel engines will not function for long with pure vegetable oil. This has actually been known for quite some time. There is sufficient literature available on this subject." Already eight years ago, Soil Technology of Weihestephan had unsuccessfully asked Bonn for further research funds regarding vegetable oil. According to Strehler, the Nuclear Research Center in Julich was responsible for project administration in the energy sector, but probably had other interests.

Even representatives of the scientific community voice objections to the vegetable oil concept citing that the production of one liter of vegetable oil would require the use of about the same amount of another fuel—thus, energy was only converted to energy at the same ratio, which was neither rational nor sensible. Strehler considers this objection "the typical example for an attempt to run down vegetable oil." It was simply ignoring serious scientific tests which had shown that for oil-producing plants the ratio of input to output is "at least at one to ten" according to Strehler.

#### Little Interest in Bonn

Strehler believes that not much support for vegetable oil could be expected from the automobile industry. "They are only asking—if they do so at all—if vegetable oil would be immediately available for the respective engines. The answer to this would have to be 'no.' Thus, the preconditions first have to be created politically. But, in spite of the findings by experts, Bonn shows too little interest in this alternative for obtaining energy from biomass. There, they do not, or do not wish to, understand the possibilities of using regenerative energy."

Strehler is of the opinion that vegetable oil as fuel should be promoted in the interest of the environment, even if it would be more expensive than fossil fuel. Reasoning: "The price for gasoline is unrealistically low because limited resources are plundered almost for nothing and, in addition, the costs for ecological damage is passed on to the general public." The user could only be enticed to conservation and reorientation if he were confronted with higher prices.

Strehler is also in charge of agricultural projects in developing countries. He states that in some of these countries the deserts are expanding at the rate of a hundred kilometers per year. This development could only be stemmed by large area cultivation—"for

example by planting oil-producing plants from which fuel can be extracted." The residues from the pressing can then be used as fertilizer, animal fodder or, under certain conditions, even as food. It should be considered if it would be possible, in this manner, to stem the rural exodus and to promote social equalization.

However, the ecological side of the matter poses problems. Dr. Peter Sutor of the State Office for Soil Culture and Plant Cultivation, a colleague of Mr. Strehler at Weihestephan, considers it necessary, in the interest of balanced fertilization and pest control "to respect ecological and agricultural principles in the cultivation of oil plants." This relates in particular to the rules of crop rotation which would prohibit an annual oil plant harvest on the same field, thus posing natural limits to the yield of vegetable oil. However, according to Sutor, this should not lead to a rejection of the vegetable oil concept. In the interest of the environment and due to the limitation of fossil fuel sources, it would not be possible to do without fuels from vegetable sources.

#### Arable Acreage Too Valuable?

This opinion is judged variably by the automobile industry. The press office of the Bayerische Motoren Werke is questioning if the carbon dioxide cycle is really closed when vegetable oil is used as fuel. BMW is looking for an escape from the environmental problems in the development of hydrogen and electric propulsion and argues that, in view of the hunger in the world, no valuable arable acreage should be used for the cultivation of vegetable fuel.

However, the Volkswagen-Werk, which is participating in the Brazilian Biosprit project by automobile export, is willing to further test the possibility of increased use of vegetable fuels. The head of development, Mr. Walzer, states that his company "had raised the idea of environmental protection to a company policy", for which reason they were participating in the test at Porsche. However, before new paths are taken, it was necessary to be sure that they were the right ones. Agricultural scientist Strehler calls the BMW remark regarding the carbon dioxide cycle as "technically ridiculous," sees "only in overpopulated rural areas a critical competition between the production of energy carriers and food" and is opposed to tests as those at Porsche, as they are designed to only prove what is already known.

In the meantime, the representatives of the vegetable oil concept are still given substantial support by the automobile industry. According to a confidential study by the American Ford Company, the environmental problems actually demand, among other things, a rapid progress in alternative fuels. "The manner in which we conduct our business, how we may conduct it, will more and more depend on questions of environmental protection."



## FINLAND

**Study Reveals Acid Rain Forest Devastation**

90WN0078C Helsinki *HELSINGIN SANOMAT*  
in Finnish 1 Apr 90 p 7

[Article: "Effects of Acid Rain on Needles Are Stronger in the North"]

[Text] The latest results of the Hapro project, which is nearing its conclusion, show that the effects of acid precipitation caused by sulfur emissions on needles are stronger in boreal conditions. In the acid rain experiments conducted at Oulu University, the same fallout dose caused more damage to needles in Utsjoki than in Oulu.

According to Assistant Professor Satu Hattusen of Oulu University, acid deposits weaken the condition of trees irreversibly in that they cause development defects in the needles. On the basis of the study, the damages are more general in a mild exposure than in a strong one.

Surveys conducted in the north also further confirmed what is polluting the eastern Lapland forests. When the winds blow from the Kola industrial region, there may be even 50-100 micrograms of sulfur dioxide per cubic meter of air on the Finnish side. When the wind blows from the southwest, the sulfur content remains on the zero- or one-microgram level.

The sulfur dioxide content of the air was measured in 10-day periods at Naruska near Salla. Since last December, as many as 12 periods have been exceptionally high in their sulfur level.

According to Huttunen, the high sulfur levels measured in Finland when winds come from Kola are not in themselves sufficient to cause great damage. After 10 years, however, a fairly large amount of direct and indirect effects on both the trees and the soil have already accumulated from the sulfur clouds.

In addition, tests performed on the plants show that the pollution peaks that come irregularly are more detrimental than steady fallout. A fallout peak that comes now and then is always a physiological shock to the plants for which the plant's defensive mechanism is not adapted.

**Chrome Levels in Sea Near Tornio Sharply Increased**

LD1106150990 Helsinki *Domestic Service* in Finnish  
1300 GMT 11 Jun 90

[Text] In the sea area below the Outokumpu Tornio factories, the chrome levels in sea-water have increased by 75 times. The figures, which differ from the results of the factory, were obtained by a new method of analysis used by the University of Oulu. According to the research carried out by the university's chemistry department the inhabitants of the areas near the factory might be subjected to fairly large amounts of chrome emissions. Increased chrome levels were also found in fish and other living organisms of the sea area.

## ITALY

**FIAT To Establish Pollutants Treatment Program**

90WN0106A Milan *L'UNITA* in Italian 18 May 90 p 7

[Article by Pier Giorgio Betti: "Eighty 'Ecological Islands' in Factories; a FIAT Project For the Environment"—first paragraph is *L'UNITA* introduction]

[Text] It has been called the "Fenice system." It is the ambitious project that is supposed to make it possible for FIAT to dispose of and salvage the waste resulting from work at all the group's plants. "The environment is a part of our total quality plan, too." There will be eighty "ecological islands" in the factories and five "integrated platforms" in its territory. Thirty months will be required to carry out the plan, and 300 billion lire will be invested in it.

Marentino—With the "total quality" flag hoisted on the flagpole, FIAT wants to make it wave in connection with the relationship between production and environment, too. On 17 May 1990, in the central meeting place of Marentino, the Corso Marconi [FIAT headquarters] management presented the "Fenice system," which is broken down into "ecological islands" and "integrated modular platforms," that are supposed to solve the knotty problem of the treatment of industrial refuse for all the plants of the group and for those of its suppliers. The anticipated expense will be approximately 300 billion lire—an investment that is very well suited to the tackling of a real problem, and one that probably has other purposes, such as that of improving the public image of the firm, which has been dimmed a bit by the events in the trial regarding the accidents, and another purpose, which is perhaps more important, of sowing seed that might bear very profitable fruit in the near future in the "business" of getting rid of the industrial waste.

The individuals responsible for industrial relations, Cesare Annibaldi and the general manager of FIAT Auto, Paolo Cantarella, attached importance to stressing that "the Fenice system is the sum total of the best technologies in the world" and may represent "a model and a concrete reference point on the national level." But for the present, the big Turin concern is protecting itself ("We are not putting up any candidates") and insists that the project was prepared for application to the waste from its factories.

In the "ecological islands" (there will be about 80 of them, located inside the factories), the waste coming from the various departments will be pretreated and compacted to make it easier to transport. Those materials will be made to flow to five "integrated platforms" that will carry out various treatment procedures. The organic-type refuse will be incinerated at 1,000 to 1,200 degrees, with the employment of methane gas and the recovery of thermal energy to be transformed into electric energy. On the other hand, mud, dust, and slag will be rendered inert and transferred into discharge areas that "do not require any particular

level of protection" and that will be transformed into verdant areas after eight or 10 years. More results will be obtained with this system: "no pollution, no waste, and optimization of resources." This is a policy, the men in Corso Marconi maintain, that FIAT has been following for some time and that it regards as an advanced policy. Details on the location of the five platforms (the total capacity will be 200,000 tons per year) have not been provided. They will be built in "strategic" areas according to the need to serve the existing factories. Each platform will occupy an area of approximately 20,000 square meters and the chimneys will have a height of "not less than 50 meters." It is asserted that the emissions will be "well above the standards provided by the rules" and kept under control by a monitoring network. But it is to be believed (or predicted) that the population and the public authorities will demand maximum availability of data and information. The disastrous experience with ACNA in Cengio has made everybody more distrustful regarding big industry's good intentions.

But to what extent does FIAT "commit itself to protection of the environment" in regard to its products—automobiles? The reply is that they have been taking steps to eliminate asbestos from brakes and clutches for a couple of years. In the next step, all the FIAT automobiles will be equipped with catalyzers; but not before 1993. The carrying out of the "Fenice system" has been entrusted to Fiasì, of the FIATIMPRESIT group.

#### **ENEA President on Washington Global Warming Conference, Nuclear Power**

90WN0043A Rome LA REPUBBLICA in Italian  
18 Apr 90 p 7

[Unattributed article reporting on an interview in Washington, D.C., by unidentified groups of journalists with Umberto Colombo, ENEA president, and Corrado Clini, Environment Ministry official, who interposed concluding remarks; date not given: "Referendum or No, Italy Needs Clean and Safe Nuclear Energy"—first paragraph is LA REPUBBLICA introduction]

[Text] Washington—Italy is witnessing the resurgence of the nuclear energy question in the great international "treasure hunt" for alternative energy sources not based on petroleum or coal. "No doubt it is an approach worth considering," said Professor Umberto Colombo, president of the Italian Committee for Research and Development of Nuclear and Alternative Energies (ENEA), and head of the Italian delegation to the Washington conference. In our country a people's referendum stopped our nuclear power plants, "but we are continuing our search for more secure techniques than the present ones," Colombo explained in a interview with a group of journalists, where he summed up Italy's position in the debate over the "greenhouse effect."

[Journalists] Professor, this morning Bush said in effect that one must study more before deciding if and how to protect the environment. Do you agree?

[Colombo] It is certainly useful to study more. It cannot be denied that until now there have been two schools of

thought on ecological damage to the atmosphere. The first maintains that the Earth's overheating is a fact, and is directly related to man's activity. The second admits that in the last one hundred years there has been an average increase of 0.6 degrees Centigrade in the planet's temperature, but does not consider there is sufficient proof to attribute it to human causes. It is certainly important to extend scientific research and relate it to economic analysis, as Washington is trying to do.

[Journalists] And yet American environmentalists and various European governments accuse Bush of wishing to use this conference as an excuse to postpone any kind of action.

[Colombo] Actually, we say it is right to study the problem more, but that does not mean waiting before taking any action. In any event, several actions would be useful. For example, petroleum is a non-renewal energy resource destined to run out; reducing its consumption is a valid, urgent objective. Thus, it is right to think of consuming less fossil fuels. Certainly, our knowledge of environmental phenomena is incomplete, but there is no harm in taking certain steps. Development of a highly efficient energy technology is absolutely necessary in an economically mature and responsible society.

[Journalists] Are you referring to nuclear energy?

[Colombo] That, too. Today nuclear energy in Italy is at a standstill, while here in America it is active, although in crisis because of a fundamental reason. People are afraid of radioactive wastes and, in case of an accident, of having only total evacuation as a means of defense. If techniques and reactors were found not requiring evacuation, using preventive measures with security systems intended to shut down the plant in case of a pre-alarm situation, nuclear energy would again be a usable source of energy. And, in the long-term, we should also keep nuclear fission in mind. Perhaps it will only be possible within 50 years, but it is the possibility of "clean" energy that inspires hopes, and in which it would be worth the effort to invest.

[Journalists] America is criticized a little by everyone, but it is passing a law for "clean air" providing for very severe measures against the emission of noxious gas, with particular reference to automobiles. Is it possible a law of that kind will also reach Italy sooner or later?

Corrado Clini, director general of the Ministry of Environment's agency for the prevention of pollution, interrupted, saying, "There already is a packet of measures, and they will come into effect before the end of 1991. But it is true that the Clean Air Act passed by the American Senate provided very strong impetus to the criteria and timing we adopted." Clini foresees that the U.S. step will also serve as an example to us, strengthening the arguments advanced by the minister of environment in the debate with the minister of industry. The impression is that, in Italy as in the United States, environmentalists, scientists, and economists remain divided, regardless of how much Bush wants to bring them together.

## NORWAY

## Majority of Citizens Said To Favor Environmental Taxes

90WN0079A Oslo AFTENPOSTEN in Norwegian  
5 May 90 p 8

[Article by Ole Mathismoen: "Willing to Pay Higher Taxes for a Better Environment"]

[Text] Most Norwegians give a resounding "yes" to environmental taxes. Only 15 percent reject new, higher taxes to halt the destruction of the environment, while 72 percent say yes. Even if fewer people agree on specific taxes, one-half are willing to pay more for gasoline.

These remarkable findings emerge from a major public opinion poll on the environment done for AFTENPOSTEN by Opinionen, Inc. At the major conference on the environment which opens in Bergen over the weekend, the issue of economic measures in environmental protection will be central. In any event, Prime Minister Jan P. Syse and Environment Minister Kristin Hille Valla have a solid majority among the people of Norway behind them when they attempt to convince delegations from the United States and Great Britain that in the future environmental taxes will be an efficient and necessary tool in environmental work.

All age groups and both sexes are equally interested. Young men and older women are a bit more dubious than the average. The raw data for the survey show furthermore that the more education people have and the more they earn, the greater their wish is for environmental taxes. Sixty percent of those without higher education are willing to pay an environmental tax, whereas over eighty percent of those with more than six years [of higher education] are.

## Progressive Party: Taxes!

Environmental taxes receive the most support from Socialist Left and Liberal Party supporters. The party which has styled itself the environmental tax party par excellence, i.e., the Christian People's Party, comes out the worst. Only 58 percent of the party's voters said yes, whereas support in the Progressive Party is 67 percent.

Interest in environmental taxes declined somewhat when those surveyed were asked about specific taxes. Nevertheless 47.4 percent responded that they approved of higher gasoline taxes. The most remarkable fact here is that 37 percent of Progressive Party voters are willing to pay environmental taxes on gasoline and oil, and only 27 percent of the party's voters entirely rejected the idea. Some 54 percent of Conservative Party voters approved environmental taxes on gasoline, but only 47 percent of Labor Party supporters said yes. The Christian People's Party also scored low in this area—only 45 percent of party supporters approved of higher gasoline prices to protect the environment.

Interest in environmental protection is still on the rise here in Norway. Over 90 percent of those questioned said they were involved in anti-pollution work, 47 percent to a great extent and 44 percent to a certain extent. Only 7.8 percent had little involvement in environmental protection. These figures confirm again that environmental protection, and in particular the fight against pollution, is becoming increasingly important for most people. Being an environmental protectionist is no longer connected with radicalism or opposition to economic growth. In most [political] camps, an interest in saving the environment is entirely accepted if not demanded. And the interest in environmental taxes shows that this unspoken interest is also about to be translated into a wish to see specific actions taken—even if this should mean higher prices for gasoline and air travel, sewage taxes, or costlier consumer goods.

Our survey also showed that the earlier trend of having women be more interested in the environment than men, and younger people more than older people, is no longer true. In fact, several percent more men than women are involved to a great extent in anti-pollution work. Among women over 45 in particular, interest is lower than among men in the same age group.

Interest in environmental protection is decidedly greatest in Oslo and Akerhus, where over half [of those surveyed] are greatly concerned with the issue, whereas only 38 percent of people in the Trondheim area are.

Interest in the environment is greater in the socialist [political] camp than in the nonsocialist. Among the Socialist Left Party's voters, 63 percent are very involved, and in the Labor Party the figure is 44 percent—which is also the figure for the Conservative Party. The Christian People's Party comes out the worst, with only 37.5 percent saying they were greatly involved in anti-pollution work, whereas the corresponding figure for the Progressive Party was 38 percent. On the other hand, if the figures for those who are very interested and interested to a certain extent are merged, the Christian People's Party comes out the best. Overall, 16.5 percent of Progressive Party voters are not interested, whereas only two percent of Christian People's Party supporters hold the same opinion.

## Norwegians' Opinions on Environmental Taxes

Opinion	Percentage of sample holding opinion
In favor of higher taxes to improve the environment	71.9
In favor of higher taxes on chemical products	61.5
In favor of higher taxes for sewers and sewage disposal	47.6
In favor of higher taxes on gasoline and oil	47.4
In favor of higher taxes on air travel	39.5
Not in favor of environmental taxes	15.6

Norwegians are generally willing to pay higher taxes for a better environment. This interest declines somewhat if specific taxes are proposed.

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